-17 Textile industries 8

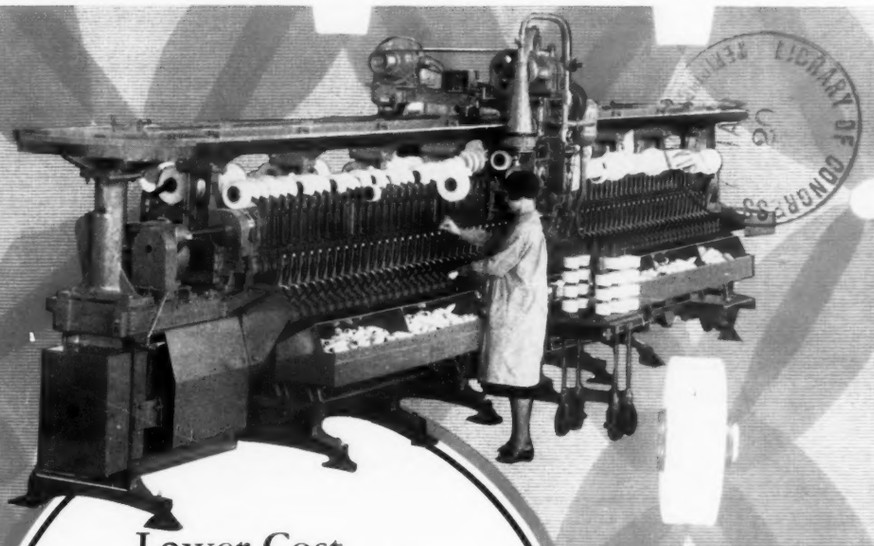
JANUARY, 1932

COTTON

Serving the

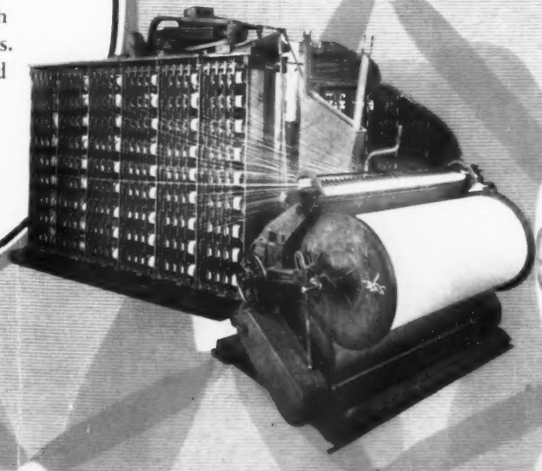
TEXTILE INDUSTRIES

LIBRARY OF CONGRESS



Lower Cost . . . and Better Quality

Barber-Colman Automatic Spoolers and High Speed Warpers are designed to wind yarns at high speed without the use of tension devices. This permits the yarn to be spooled and warped as it should be, without undue strain, which results in worthwhile improvements in both slashing and weaving.



BARBER-COLMAN COMPANY

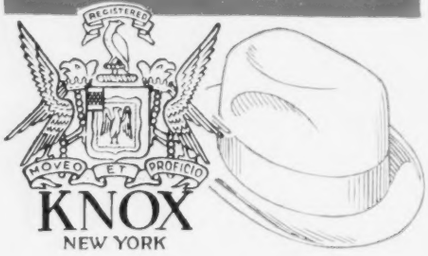
General Offices and Plant

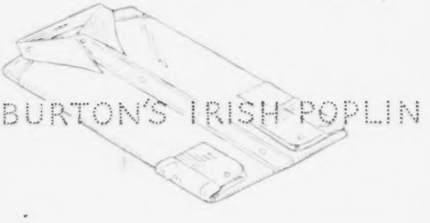
GREENVILLE, S. C. ROCKFORD, ILLINOIS, U. S. A. FRAMINGHAM, MASS.

Table of Contents, Page 27. KNITTING SECTION, PAGE 93 Advertisers' Index, Page 136.

Kaumagraph protects your product and identity

Kaumagraph protects your pro





MARKETING *problems are often* MARKING *problems* ~ K. D. T.

THE LITTLE COTTON BOLL takes so many shapes, serves so many purposes, goes through so many processes that even a skilled eye cannot always determine excellence at a glance. The reputation of the maker and the seller are vital factors in its final value. The mark on the fabric is protection to maker, seller, user. Leaders in the textile industry have wisely studied most carefully the best marking methods — and 80% of all the dry transfers used are K. D. T.'s.

K. D. T.'s can be in any single color or in two colors; can be dye-resisting or not, as needed: can be permanent or semi-permanent. 350 formulas have been developed to meet different transfer needs — perhaps your problem requires a new formula—if so we will develop it. K. D. T. stock transfers of sizes in various designs and colors cover a wide range of textile requirements. K. D. T.'s are economically applied dry to any textile by hand or machine.

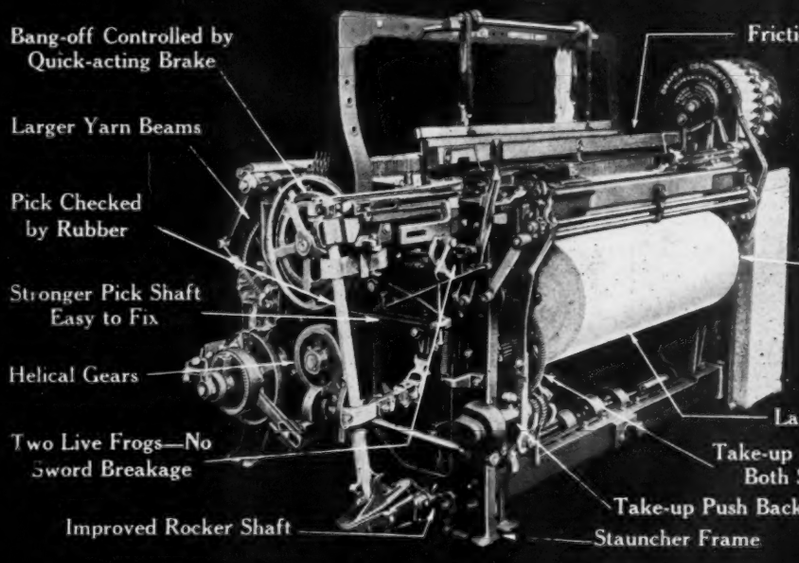
Perhaps one phase of your marketing problem is really a "marking" problem. If so, why not come to Kaumagraph? We are able and eager to help you.

KAUMAGRAPH COMPANY
200 VARICK STREET, NEW YORK CITY
CHICAGO • PHILADELPHIA • LOS ANGELES • CHATTANOOGA, TENN.
CHARLOTTE, N. C. • PARIS, ONT. • PARIS, FRANCE • MANCHESTER, ENGLAND

Kaumagraph protects product package identity

COTTON is published monthly by W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga. Subscription rates, United States and Possessions, $1.00 per year; Canada, $1.50 per year; Foreign, $2.00 per year. Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

It Will Save You
$ $ $ $ $


Bang-off Controlled by Quick-acting Brake
Larger Yarn Beams
Pick Checked by Rubber
Stronger Pick Shaft Easy to Fix
Helical Gears
Two Live Frogs—No Sword Breakage
Improved Rocker Shaft
Friction Clutch without End Thrust
41 Inch Goods on 40 Inch Loom
Larger Roll of Cloth
Take-up with Bearings on Both Sides of Gears
Take-up Push Back
Stauncher Frame

Also Anti-friction Bearings Alemite Greasing

The X Model Loom

Why It Will Save You Dollars

Runs at 190 to 200 Picks per Minute
Runs More Smoothly—More Steadily
Stops Quickly and Accurately
Makes More Cloth—Better Cloth—Less Seconds
Easier to Oil and Clean—Less Fixing
Less Work to Change Warps—to Take Off Cloth
As Many Looms per Weaver
More Looms per Fixer
More Cloth per Loom

DRAPER CORPORATION

Hopedale Massachusetts

Southern Offices Atlanta Ga and Spartanburg S C

AldricH MachinE WorkS

SINGLE PROCESS SYNCHRONIZED PICKERS

(Using Your Present Machines)

MAKE

Evener Laps, yard by yard.
Cleaner Laps, with less foreign matter and fewer broken fibers.

SAVE

Labor, from 50% to 75%.
Power, from 10% to 50%.
Floor Space, Maintenance and Lubrication.

PAY

From 50% to 200% Yearly.

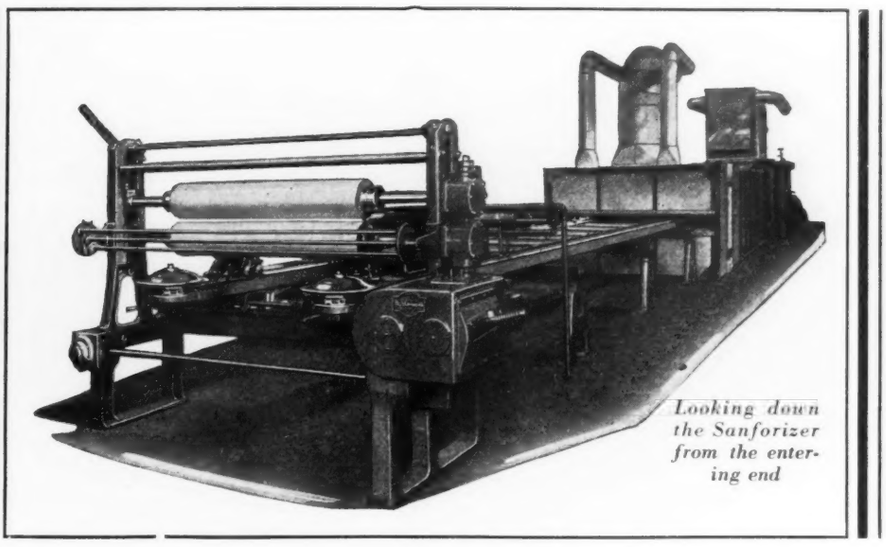
Made and installed by

AldricH MachinE WorkS

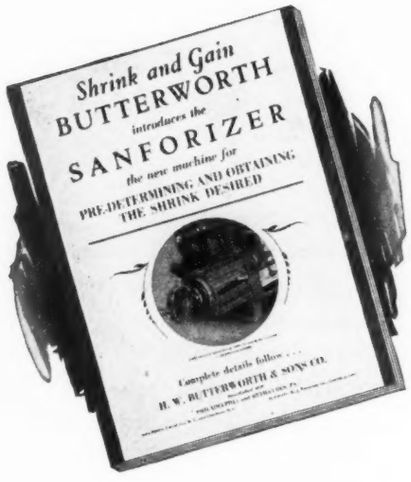
Greenwood, South Carolina

Plants Considering Sanforizing

. . . will learn the latest development in this new modern method of shrinking fabric to a pre-determined degree in our latest bulletin on the subject.



Looking down the Sanforizer from the entering end



. . . Also of the economies which Sanforizing effects over older methods.

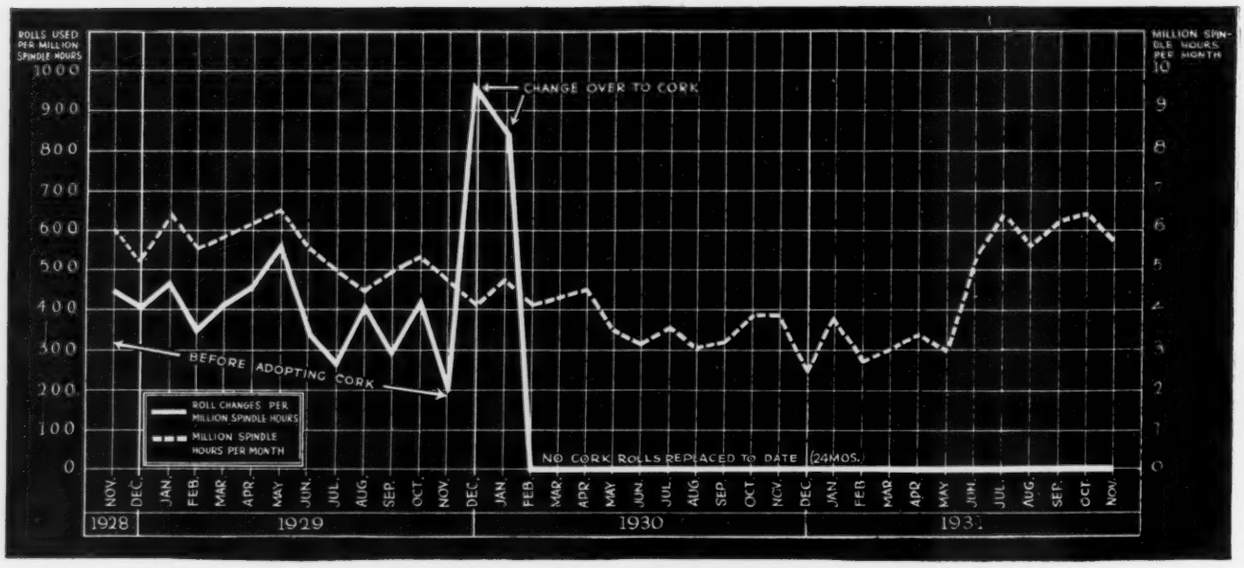
Bulletin on the Butterworth Sanforizer will be sent promptly; and always keep before you that Butterworth engineers are waiting to help you in your individual finishing problems.

H. W. BUTTERWORTH & SONS COMPANY, *Established 1820*
PHILADELPHIA, PA.
PLANTS *at* PHILADELPHIA *and* BETHAYRES, PA.

New England Office: TURKS HEAD BUILDING, Providence, R. I.
Southern Office: JOHNSTON BUILDING, Charlotte, N. C.
In Canada: W. J. WESTAWAY CO., Hamilton, Ontario

BUTTERWORTH *Finishing* MACHINERY

A COMPLETE LINE OF FINISHING MACHINERY FOR THE TEXTILE INDUSTRY



Mill makes 65% SAVING *in two years*

COMPARATIVE OPERATING DATA

	Before Adopting Cork	*After Adopting Cork*
1. Number of Spinning Rolls Used Before adopting cork—12 month period 11/1/28—1/1/29.....	27,298	.....
After adopting cork—24 month period 12/1/29—12/1/31.....	.....	8,244
2. Million spindle hours above rolls operated.....	67.3	99.6
3. Roll changes per million spindle hours.....	405.62	82.76
4. Cost per roll change or replacement.....	$.07	$.12
5. Costs of roll changes or replacements per million spindle hours.....	$28.39	$9.93
6. Net saving per million spindle hours on cork....	$18.46 or 65%*	

**Note: Rolls are still running so total savings will be even larger.*

IN the fall of 1929 a South Carolina mill group of 170,000 spindles equipped a unit of 12,608 spindles with Armstrong's Seamless Cork Cots as a production test. Last June when its savings figures were first published, replacement cost per million spindle hours had already been cut from $28.47 to $16.14, a 43% saving in 17 months.

Now, after 24 months, *no* cork rolls have needed replacement, and the average cost per million spindle hours has dropped to $9.93, a 65% saving. And the rolls are good for several months more!

The number of ends down has been reduced slightly on cork. Strength and evenness of yarn is up to the standard required by the mill. Fewer roll changes mean less work in the mill, and better running conditions. This mill spins 35s warp and 43s filling from $1\frac{5}{16}$ cotton.

Since the first of January 1931, 24 more mills with a total spindlage of 3,250,000, spinning 2s to 120s have reached decisions to use Armstrong's Seamless Cork Cots and cut their roll covering costs. Will *you* make these savings in 1932?

Armstrong's (A) *Product*

For specific figures or other information, write Armstrong Cork Company, 923 Arch St., Lancaster, Pennsylvania.

Armstrong's Seamless Cork Cots

For Spinning and Card Room Rolls

YOU SHOULD WORRY

Every Casablancas Long Draft Spindle in your competitor's mill is a nail in YOUR coffin.

Whitin-Casablancas Spinning with its long draft, elimination of much of the roving operation, and reduction in labor costs is one of the major keys to low cost production. There are complete cost surveys which show an advantage in cost of nearly 45 cents per spindle per year between regular and Casablancas Spinning. If the low-cost, Casablancas-equipped mill pockets its saving, the management is making a profit that you would like to share. If the saving is passed along to the customer in the form of lower prices, your own higher costs may force you to operate at an actual loss. Either way you will be at a disadvantage.

Today no cotton mill can afford to overlook Whitin-Casablancas Spinning, the world's most economical and successful long draft system. In a short time it will not be merely desirable, as it is now—it will be absolutely necessary. As the sole American manufacturer under Casablancas patents, Whitin has much to offer you.

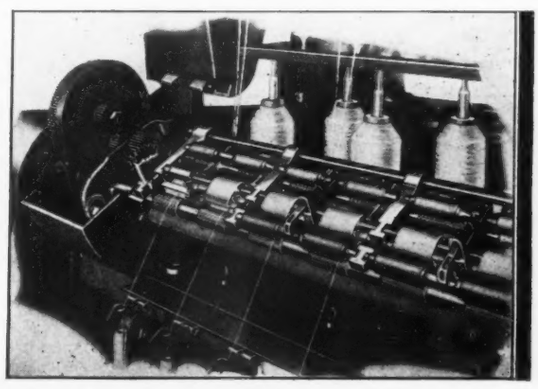
WHITIN
MACHINE WORKS

ESTABLISHED 1831

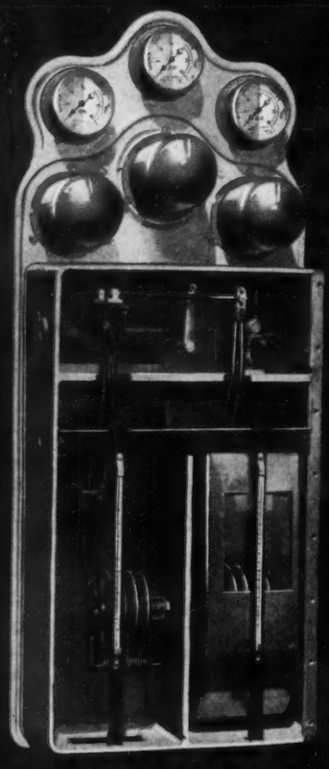
Fales & Jenks Division
Woonsocket Machine and Press Division

Whitinsville, Massachusetts, U. S. A.

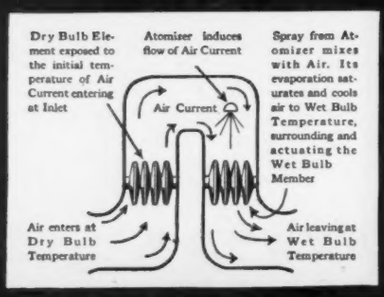
Charlotte, N. C. Atlanta, Ga.



VERSATILITY



PSYCHROSTAT
TYPE HHPX


Dry Bulb Element exposed to the initial temperature of Air Current entering at Inlet
Atomizer induces flow of Air Current
Spray from Atomizer mixes with Air. Its evaporation saturates and cools air to Wet Bulb Temperature, surrounding and actuating the Wet Bulb Member
Air Current
Air enters at Dry Bulb Temperature
Air leaving at Wet Bulb Temperature

THE PSYCHROMETRIC PRINCIPLE

ParkSpray
Certified Climate

AN INDIVIDUALITY OF THE PSYCHROSTAT

Using the wet and dry bulb principle (same as sling psychrometer) makes the ParkSpray Psychrostat not only unique, but versatile. It will do a great many things you wouldn't expect of automatic humidity regulators.

It is the only regulator that will exactly control relative humidity regardless of temperature changes.

In addition to controlling humidity, it may be made to control temperature.

In addition to controlling humidity and temperature, it may be made to control air-change or ventilation.

In addition to all these, it may be made to operate humidifiers at two stages . . . a heavy duty stage, say in summer when you want ventilation, and a lower stage in winter when windows are closed.

The ParkSpray Psychrostat is the *only* humidity regulator that possesses this versatility.

•

Bulletin 226D explains why the Psychrostat is accurate, positive, permanent, easily adjusted. We shall be glad to send it to you.

•

Parks-Cramer Company

FITCHBURG, MASS. CHARLOTTE, N. C.

CANADA: Parks-Cramer Westaway Co., Ltd., Main and McNab, Hamilton, Ont.; 455 Craig West, Montreal, P. Q. CHINA: Elbrook, Inc., Shanghai, Pekin, Tientsin. GREAT BRITAIN, IRELAND: Cook & Co., Manchester, Ltd., 18, Exchange Street, Manchester, England. CONTINENTAL EUROPE: Compagnie Ingersoll-Rand, Paris, France. INDIA: Ingersoll-Rand (of India) Ltd., Bombay, Calcutta. MEXICO: Sr. Don Fernando Caraves, Apartado 1100, Mexico City.

ADEQUATE HUMIDITY — ACCURATELY CONTROLLED

WHAT THE NEW C&K SUPER SILK LOOM means to the WEAVER

The major point of view of our engineers in the development of the new Super Silk has been to simplify the weaver's work and offer a loom capable of producing more and better cloth. For instance, the shipper and brake handles have been so redesigned and relocated that both handles can be worked by one hand at one time. The sturdy takeup, the loose reed motion, the maintaining of accurate shafting centers through use of inner and outer races on the roller bearings, the greatly reduced vibration through precision construction, etc.—all of these are designed to help the weaver in reducing defective cloth to a minimum.

The new Super Silk Loom is no copy of an old model. It is as up-to-the-minute as a 1932 automobile. It is simplified and redesigned throughout. Weavers welcome the new loom because it offers the facilities to turn out more cloth, to produce better qualities with less physical effort.

There is a world of satisfaction to the weaver in running the C & K Super Silk Loom.

THE NEW FAMILY

High Speed Worsted	*Super Silk*
4 x 1 Automatic; 4 x 4 Non-automatic	Cone, dobby or intermediate head
Cotton King—Cam or dobby	Non-automatic with feeler motion
2 x 1 and 4 x 1 bobbin changing	2 x 1 or 4 x 1 bobbin changing
2 x 1 and 1 x 1 shuttle changing	2 x 1 shuttle changing

PRECISION PRINCIPLES OF CONSTRUCTION ALIKE IN ALL

CROMPTON & KNOWLES LOOM WORKS

LOOMS FOR COTTONS, SILKS, RAYONS, WOOLENS, CARPETS AND RUGS, BLANKETS, JACQUARD FABRICS, ASBESTOS, LINENS

Allentown, Paterson, Philadelphia WORCESTER - PROVIDENCE S. B. Alexander, So. Mgr., Charlotte

IDEAL PRODUCTION

the idea behind Tuffer Card Clothing

THROUGHOUT every step in its manufacture Tuffer Card Clothing is made with one idea kept constantly in mind . . . . ideal production for the ultimate user.

Tuffer Card Clothing is ideal production equipment . . . . the result of 65 years' experience—all of it paving the way towards better and more economical production.

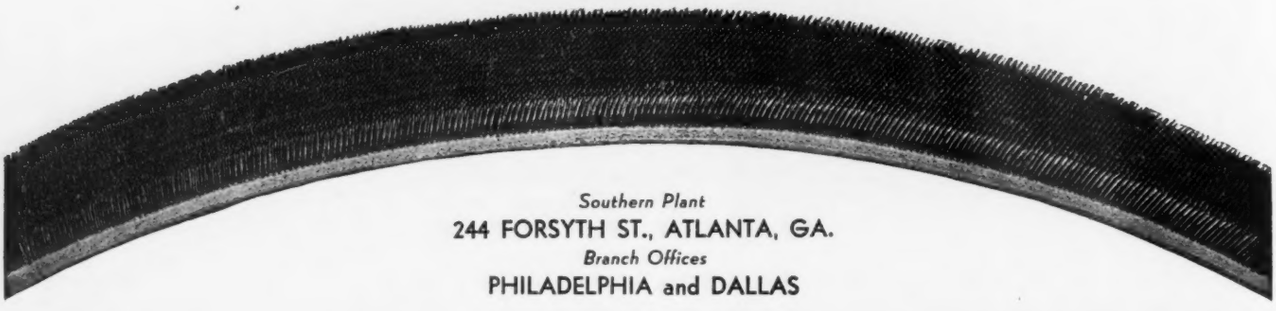
Today Tuffer Card Clothing gives the maximum in longevity and service. It gives many more pounds of production and saves considerably on stock here-to-fore wasted.

To prove conclusively to you the superiority of Howard Brothers Card Clothing, we are always quite willing to subject it to practical tests, right in your own plant. Satisfactory and economical performance on the part of our products has always been our best sales argument.

Consult a Howard Brothers card clothing expert.

HOWARD BROS. MANUFACTURING CO.

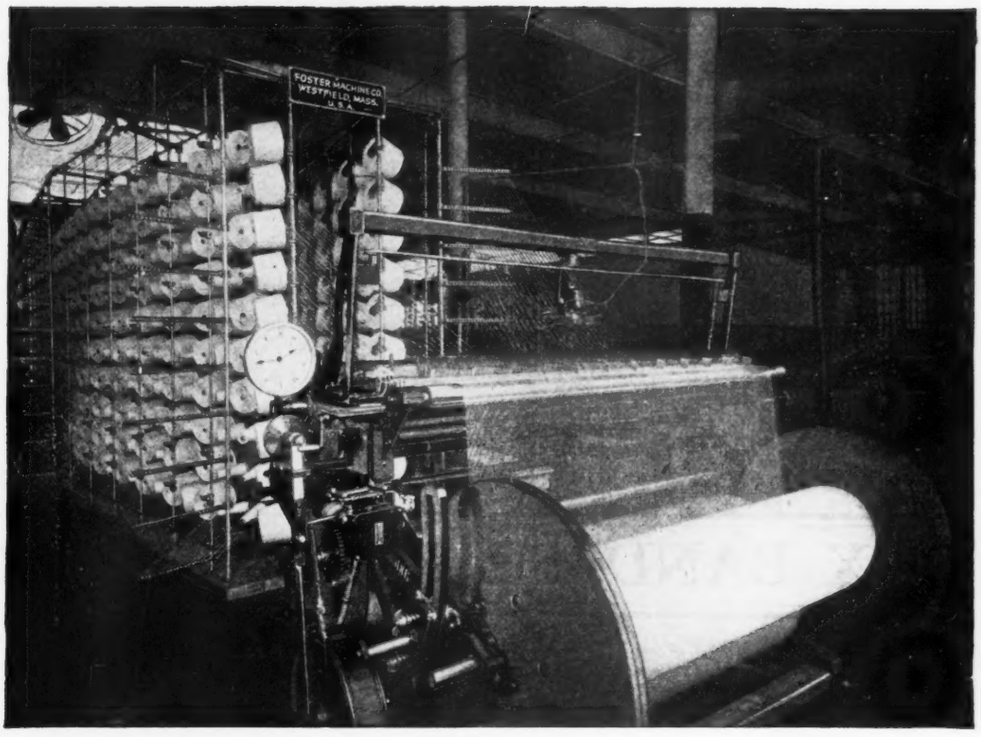
HOME OFFICE and FACTORY: WORCESTER, MASS.



Southern Plant
244 FORSYTH ST., ATLANTA, GA.
Branch Offices
PHILADELPHIA and DALLAS

TRADE MARK TUFFER REG. U.S. PAT. OFF.

CARD CLOTHING



Foster
CONE WARPING SYSTEM

The following points of superiority of the Foster Cone Warping System have been demonstrated under competitive conditions.

In the Cone Winding Process using the Foster Model 102 Winder—more pounds produced by the operative with the resulting lower winding costs per pound of yarn.

Economy in Floor Space—the highest possible winding speed considering delicate yarn conditions.

Sturdy machine design and construction—minimum cost for replacements.

Operating Conditions—end piecing movements reduced promoting efficiency and preventing operative fatigue.

In the Warping Process using the Foster Magazine Cone Creel—free drawing from the cone with exact even tensioning of each strand, eliminating tight and loose warp ends.

High Warping Speed without Stoppage for recreeling.

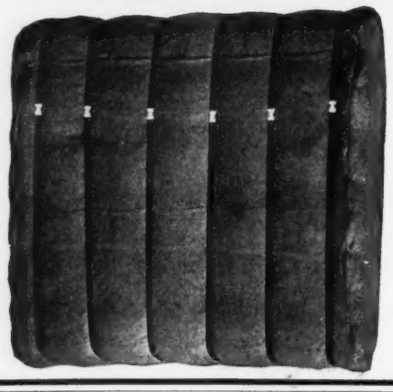
Each cone empties completely, eliminating stale yarn and waste.

Cones hold up to 4½ pounds of yarn (depending on the density of the material). This is an important item in lowering warping costs.

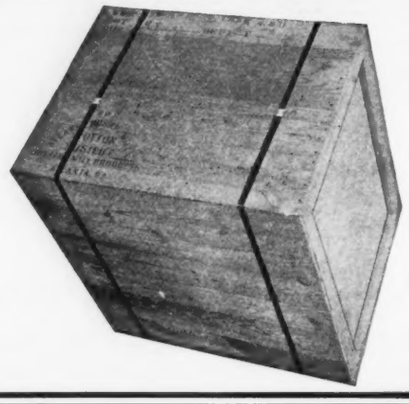
The Foster Cone Warping System is in operation in Cotton, Worsted, and Woolen Yarn and Weaving Mills.

FOSTER MACHINE COMPANY
WESTFIELD, MASS.

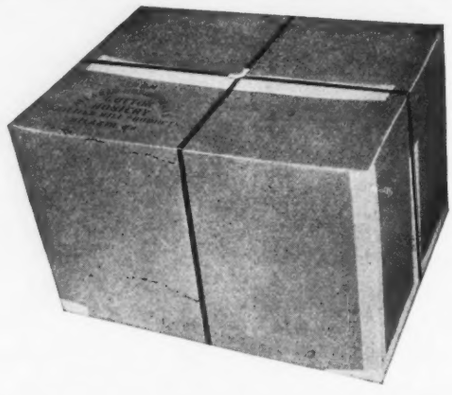
BALE TIE BAND, SEALS, BUCKLES



BOX BAND, SEALS, STRAPPING TOOLS



FOR ALL SIZES OF WOOD and FIBRE BOXES

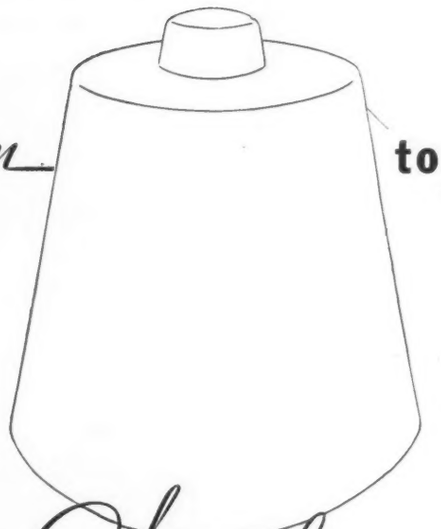


Large stocks of Acme Materials and Equipment for reinforcing all types of shipments are carried at
BROOKLYN—ATLANTA—NEW ORLEANS—GREENVILLE—SPARTANBURG

ACME STEEL COMPANY

General Offices: 2832-40 Archer Ave., Chicago SAVE WITH STEEL *Branches and Sales Offices in Principal Cities*

Talk *Yarn* to retail buyers



They are talking *Chardonize* to retail customers

Retail hosiery and underwear buyers can tell what sells and what does not without knowing all there is to know about synthetic yarns. They have not found it necessary to use magnifying glasses and microscopes to see the superiority of Chardonize, queen of dull-lustre yarns. All they have needed is the naked eye trained on popular-price counters. For it is here that the unaided vision of millions of women customers has singled out Chardonize as their choice . . . raised Chardonize to national acceptance and leadership and kept it there.

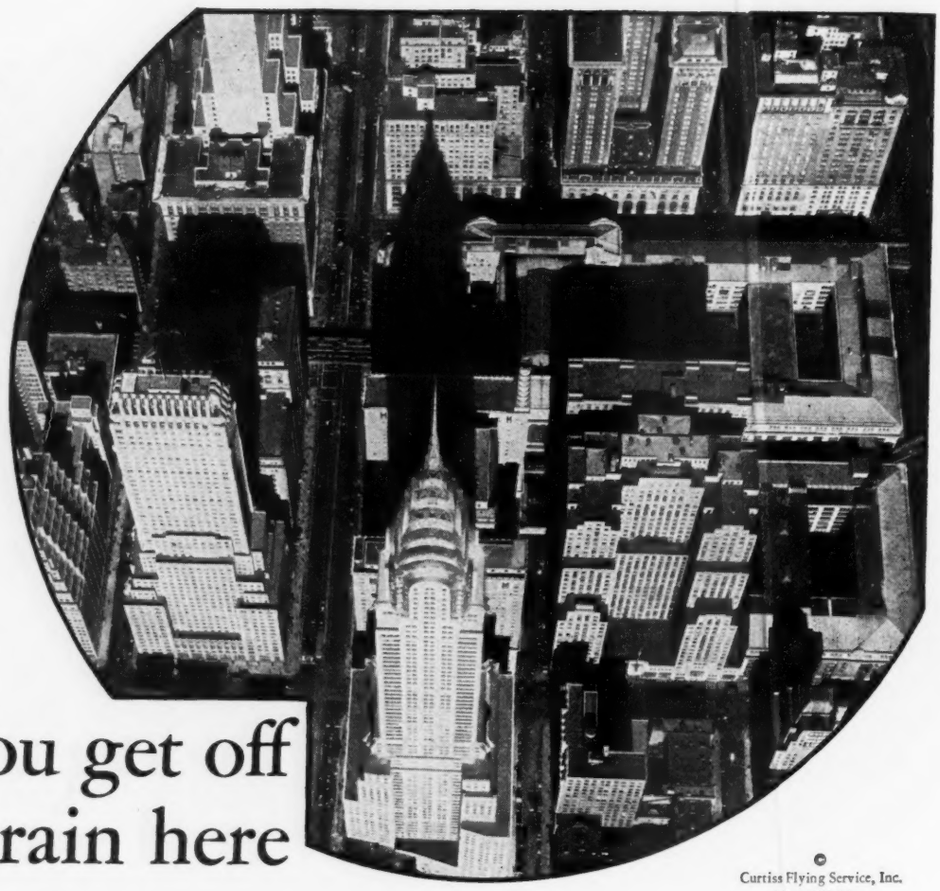
Retailers are selling underwear and stockings with the help of the Chardonize name. They are talking yarn to their customers . . . and as retail preference for Chardonize increases, yarn becomes more certainly the manufacturer's biggest talking point. Fortunately, Chardonize runs more smoothly on knitting machines. Thus you will find your selling easier and your mill operation smoother if you look to Chardonize for the results you want.

CHARDONIZE YARN

TUBIZE CHATILLON CORPORATION

2 Park Avenue, New York · *Makers of nitrocellulose, viscose and acetate yarns*

Unusual air view of the vicinity of The SHELTON, *the Grand Central District, showing Chrysler Bldg. in the foreground. Opposite the new Waldorf-Astoria.*



© Curtiss Flying Service, Inc. Photo Division

When you get off your train here

—you are but 5 minutes from *The* SHELTON, New York's most famous club hotel

Most popular among comfort-loving travelers. Where guests may enjoy an invigorating plunge in the beautiful Shelton Swimming Pool, at any hour and without charge. Where you find all the service that can be given by a metropolitan hotel of the first class—and an unusual club-like atmosphere that has endeared *The* SHELTON to travelers from every section of the world. You will like *The* SHELTON—it is different—and such a relief from the ordinary hotel.

Besides the swimming pool there is a gymnasium, completely equipped; game rooms for bridge, chess, billiards, bowling; roof garden; solarium; library and reading room; four beautiful lounges; yet room charges are no higher than in other hotels where the most you can expect is a "room and bath."

$2.50 to $3.50 for one
$4.00 and $4.50 for two
Suites, $5.50 and up.

The SHELTON
49th and Lexington Ave. New York

"The work is great and large, and we are separated on the wall, one far from another."

Nehemiah IV, 19

EVEN today, men and industries are separated "one far from another," yet never was the need for understanding and interchange of knowledge more important.

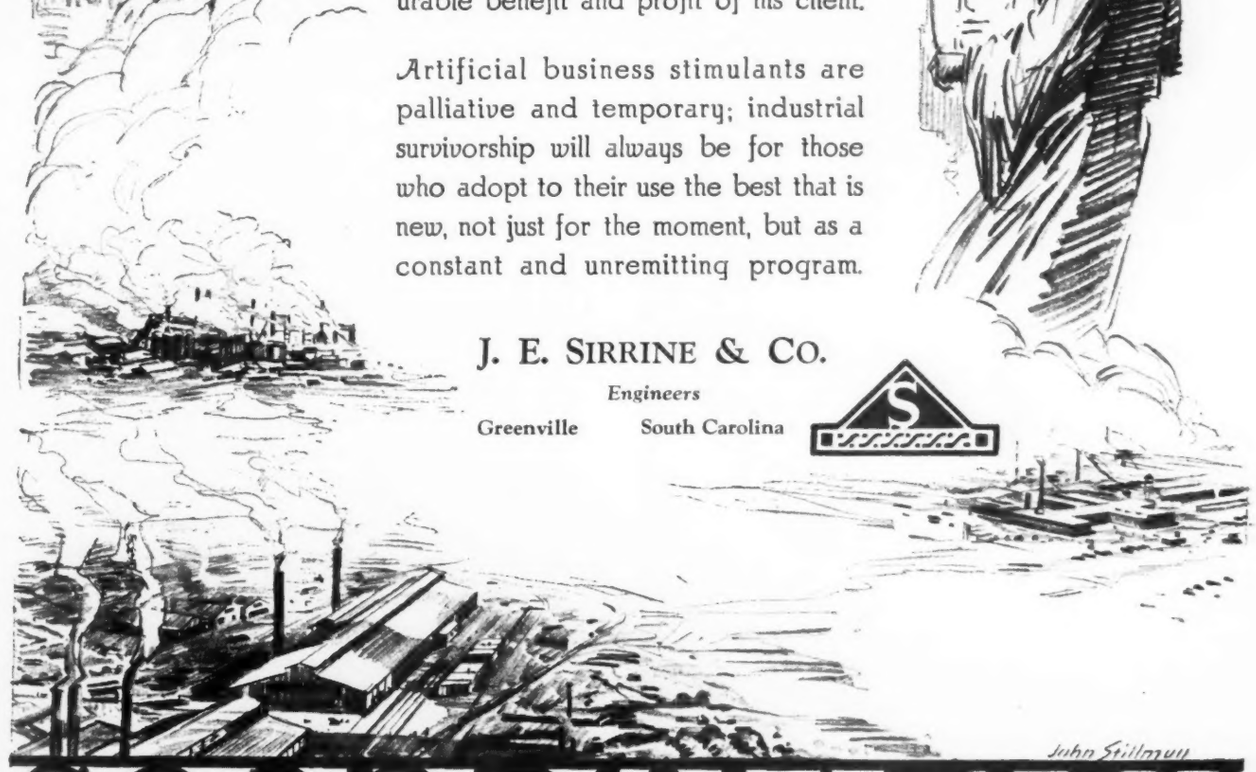
In this work that verily "is great and large" the Engineer, by his contact with the equipment and methods of diverse industries, frequently is able to adapt and co-ordinate the ideas and instruments of one industry with those of another totally unrelated—to the measurable benefit and profit of his client.

Artificial business stimulants are palliative and temporary; industrial survivorship will always be for those who adopt to their use the best that is new, not just for the moment, but as a constant and unremitting program.

J. E. SIRRINE & CO.

Engineers

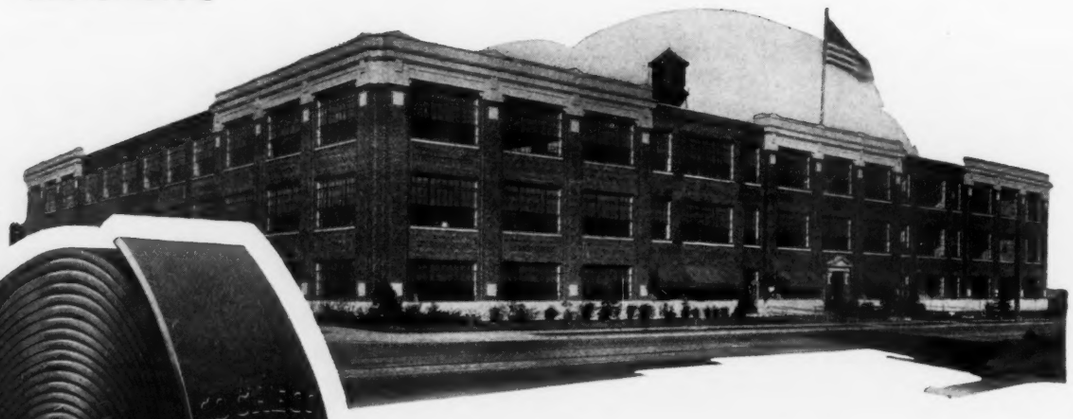
Greenville South Carolina



John Stillman

COORDINATION

COCHECO TRADE MARK BELTING



Factory Specifications Call for *Quality* . . .

Production schedules are dependent on quality equipment.

Costs are figured on uninterrupted production. Insured to a certain extent by correct power transmission.

The use of COCHECO Belting guarantees against hold up.

COCHECO Quality—with all the phrase implies—justifies the popularity of this power transmission medium.

There is a COCHECO Belt for every form of drive—the heavy main belt—the lighter transmission problem—and there's a "Book on Belts" that will help you in your selection of the leather belt for your needs.

"The Power behind the Product"

I. B. Williams & Sons

Dover, New Hampshire

DETROIT GREENVILLE, S. C. CHICAGO NEW YORK PHILADELPHIA

WHAT'S GOING ON IN OUR

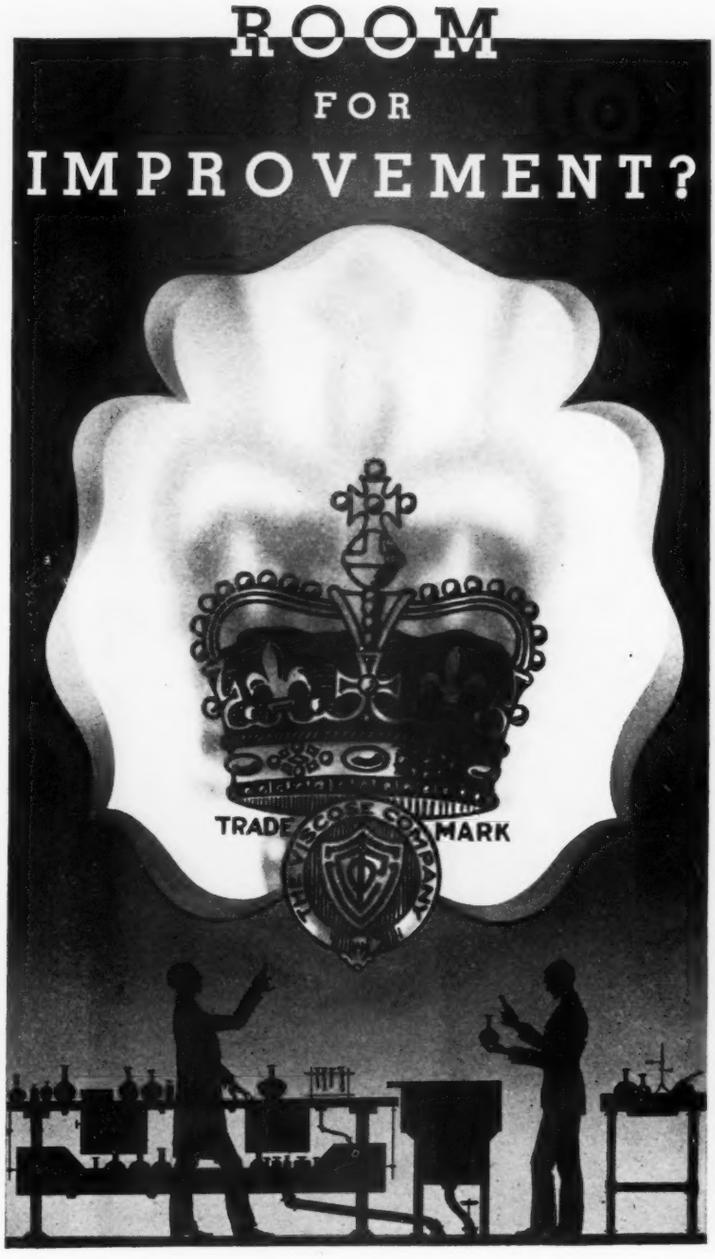
WE'RE PROUD TO ADMIT THAT WE HAVE ONE . . . AND IT'S BUSY ON YOUR PROBLEMS!

DURING times such as we've just passed through, it's a natural temptation for any yarn manufacturer to cut expenses on testing and research. Yet these are the very days when the textile trade should have the fullest support of the yarn industry . . . especially with regard to new fiber developments that may lead to fresh and more salable fabrics.

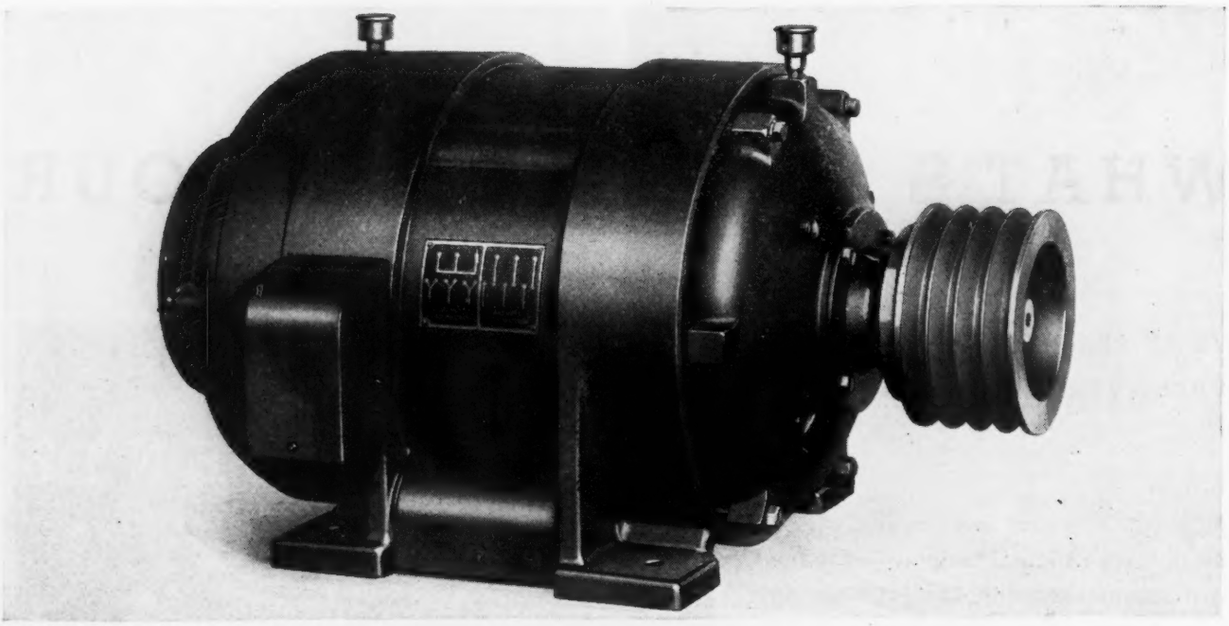
The Viscose Company, in the past two "years of depression" has spent more for testing existing yarns and developing new ones than ever before in their 21 years of rayon manufacture in America. A new permanent-dull and a highly successful new acetate yarn were both born during this period. Finer processing has been developed. The Quality-Control Plan was presented and placed in operation.

Right now, our Room for Improvement is busy with far-reaching research that has a direct bearing on your '32 business. And future advertisements in this series will convince you, we believe, that "the Crown is your buying-guide to good rayon."

THE VISCOSE COMPANY
200 Madison Avenue New York City



CROWN RAYON YARN



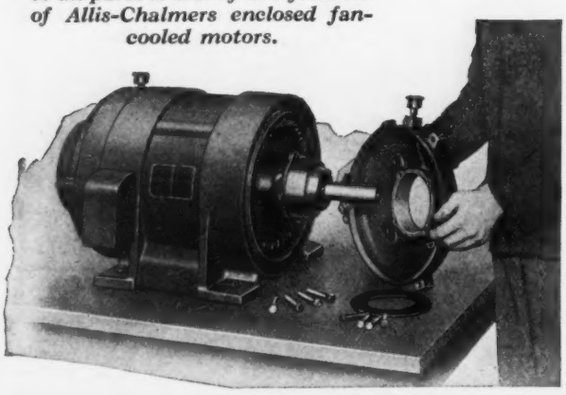
Your Maintenance Man Knows
the Value of these Enclosed Motors

HE knows that where dust, dirt, moisture, dripping water, or destructive gases are present . . . . those drives in out of the way places where motor windings become clogged or moisture soaked . . . . there, Allis-Chalmers enclosed fan-cooled motors reduce trouble and operating expense.

He knows that sturdy construction, liberal design, and unexcelled insulation are features of Allis-Chalmers motors and that the enclosed-fan-cooled type, while thoroughly protected, is readily accessible.

Allis - Chalmers enclosed fan - cooled motors approved by the Underwriters for dusty locations are described in Leaflet 2124. Explosion-proof motors, also approved, are described in Leaflet 2125-A.

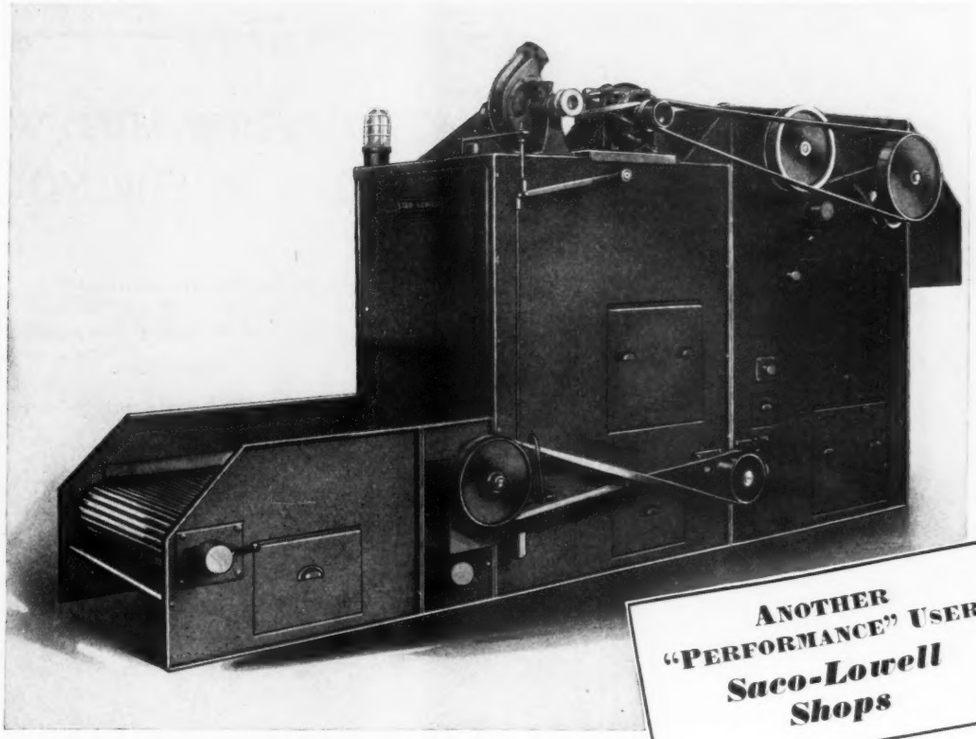
Complete and ready accessibility to all parts is one of the features of Allis-Chalmers enclosed fan-cooled motors.



Allis-Chalmers Mfg. Co., Milwaukee

ALLIS-CHALMERS MOTORS

SIXTEEN POINTS SKF PROTECTED FOR PERMANENCE *of* DEPENDABILITY!



ANOTHER "PERFORMANCE" USER
Saco-Lowell Shops

WHERE PERFORMANCE TAKES PREFERENCE OVER PRICE

All the shafts in the new Saco-Lowell F-7 Cleaning and Blending Feeder are supported on SKF Self-Aligning Ball Bearings. The total number of SKF's is sixteen, and the locations are...the drive shaft, combing roll, steel doffer, and apron rolls. Continuity of operation and quality of finished product are two vital reasons why SKF Performance Takes Preference Over Price on this equipment.

SKF Ball Bearings are an important factor on machinery where the rigid requirements of the higher operating standards of today must be consistently fulfilled. They are relatively free from friction, run smoothly and speed up production. Throughout a long life no adjustments are needed and this means the initial efficiency of the machine is prolonged. Dust and leak-proof housings reduce the maintenance problem to the renewal of lubricant but twice a year.

● *You may buy a bearing as a bargain but try and get a bargain out of using it, for nothing is apt to cost so much as a bearing that cost so little.*

2824

SKF INDUSTRIES, INC. 40 EAST 34th STREET, NEW YORK, N. Y.

SKF

Ball and Roller Bearings

Right Now—

you can increase your sales

TREATING YOUR MILL WATER DOES THIS FOR YOU

1. *Increases your product's marketability:*

Eliminates uneven, streaked, or spotty appearance due to water impurities.

Maintains uniformly high quality—more pleasing to eye and touch.

2. *Lowers your costs:*

Saves dyestuffs, chemicals, soaps, alkalies, bleaches.

Greatly reduces redyeing, reprocessing, overbleaching, tendering of fibre.

Saves fuel, labor, replacements, and repairs in your boiler room.

GIVE buyers higher quality at a lower cost, and they will buy. It is not impossible to do it—water treatment is the answer.

The removal of harmful impurities from your mill water supply will improve the quality of your output, reduce your costs and enable you to make a gratifying profit at today's prices.

Today hundreds of textile mills are using Permutit Water Treatment. At one mill it may be water softening—the removal of lime and magnesium. At another it may be filtration and the removal of suspended matter and dirt; at a third it is special treating systems for the removal of color.

Many of your competitors are so equipped. Right now, such treatment reduces their costs, and improves their quality.

You cannot afford to take chances with water. You must *know* that it is perfect for your purpose. That is our job. Let us investigate for you, find out what trouble-makers are in the water, show you how to take them out. A word from you, and a competent engineer will go into the matter—you incur no obligation.

• • •

Like to have a little advance information about water and its relation to your business? A copy of "Reducing Textile Costs and Troubles" is authoritative, full of meat—and yours for the asking.

Permutit

THE PERMUTIT COMPANY
440 FOURTH AVENUE, NEW YORK, N. Y.

Manufacturers of Industrial and Household Zeolite Water Softeners—Hot and Cold Lime Soda, Lime-Barium Water Softeners—Sand Filters—Iron, Oil and Manganese Removing Filters—Continuous Boiler Blowoff Equipment—Ranarex CO_2 Indicators and Recorders—Other Power Plant and Water Treating Specialties.

Water Treating Equipment

TWENTY-THREE SALES OFFICES THROUGHOUT THE UNITED STATES

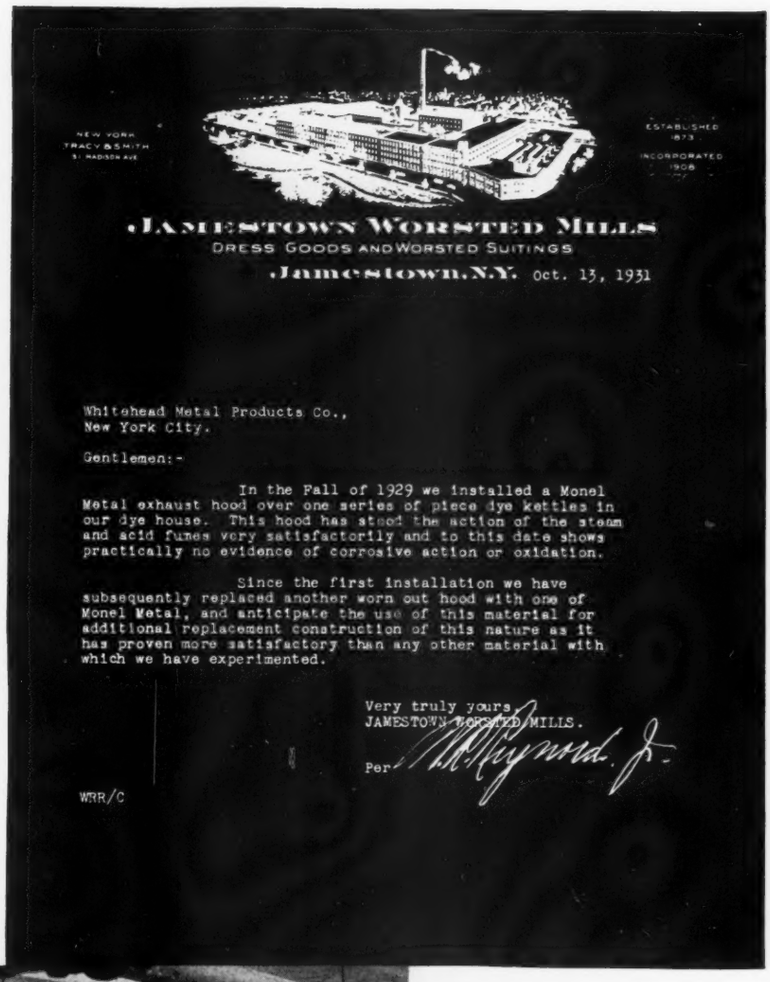
Proved!

Monel Metal

"more satisfactory than any other material"

for dye kettle exhaust hoods...

•



NEW YORK TRACY & SMITH 5 MADISON AVE

ESTABLISHED 1873 INCORPORATED 1908

JAMESTOWN WORSTED MILLS
DRESS GOODS AND WORSTED SUITINGS
Jamestown, N.Y. Oct. 13, 1931

Whitehead Metal Products Co.,
New York City.

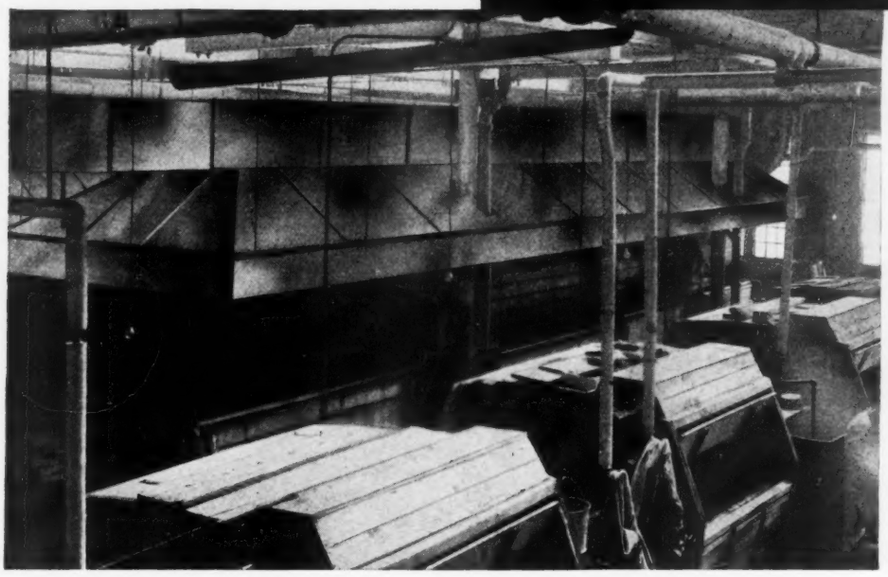
Gentlemen:-

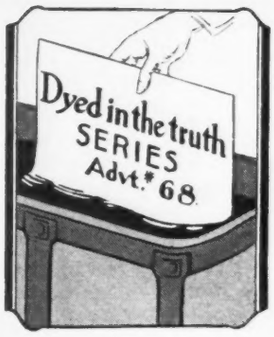
In the Fall of 1929 we installed a Monel Metal exhaust hood over one series of piece dye kettles in our dye house. This hood has stood the action of the steam and acid fumes very satisfactorily and to this date shows practically no evidence of corrosive action or oxidation.

Since the first installation we have subsequently replaced another worn out hood with one of Monel Metal, and anticipate the use of this material for additional replacement construction of this nature as it has proven more satisfactory than any other material with which we have experimented.

Very truly yours,
JAMESTOWN WORSTED MILLS.
Per W. R. Raymond, Jr.

WRR/C





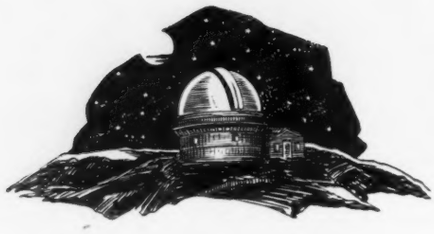
47 ft. by 10 ft. 6 in. Monel Metal hood over piece dye kettles in plant of Jamestown Worsted Mills, Jamestown, N.Y., installed by Wiesner-Rapp Company, Inc., Buffalo, N. Y. The second Monel Metal exhaust hood was installed by Jamestown Blower Company, Jamestown, N. Y.

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

INCO MONEL METAL

A HIGH NICKEL ALLOY
MONEL METAL
NICKEL ALLOYS PERFORM BETTER LONGER

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.



SCIENCE

Astronomy is among the oldest of the sciences yet it is new in the same sense that chemistry is new. We have found out much but not all there is to know about either.

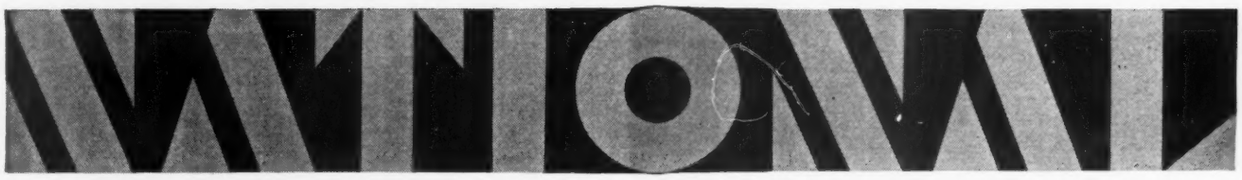
One potent fact about chemistry we do know is that a little or much of "this" or "that" added to something else makes something useful. And also if we change the quantity or quality of one ingredient we have something else again not quite so useful.

In the thirty odd years we have been specializing on chemicals for the Textile Industry, we have learned most thoroughly the exact quantity and exact quality of each ingredient which must go in to make each compound match perfectly the methods and practices of each mill we serve, in order that we may reap the benefits which come from serving those mills well.

ARKANSAS COMPANY · INC·

233 BROADWAY NEW YORK

CHEMISTS TO THE TEXTILE INDUSTRY



SPRING SHADES 1932

All of these fifty new shades for ladies' woolen dress goods may be economically produced with varying degrees of fastness as desired, by combinations of the following NATIONAL DYES:

National Wool Yellow Extra Conc.
National Fast Wool Yellow 3GL

National Wool Orange 2G Crystals
National Fast Crimson GR

National Fast Crimson 6BL
National Fast Wool Red GL

National Fast Wool Red BL
National Wool Red 40F

National Alkali Fast Green 2G
National Acid Fast Violet BG

National Fast Wool Violet 2R
National Alizarine Sapphire

National Alizarine Sapphire BN
National Alphazurine A

•

Color formula for any of these shades may be obtained through the nearest Branch Office.

•

NATIONAL ANILINE & CHEMICAL COMPANY
Incorporated
40 RECTOR STREET, NEW YORK, N. Y.

BOSTON—150 Causeway St. PHILADELPHIA—200-204 S. Front St.
PROVIDENCE—15 Westminster St. CHARLOTTE—201-203 W. First St.
CHICAGO—357 W. Erie St. SAN FRANCISCO—145 Second St.
TORONTO—137-145 Wellington St., West

NATIONAL DYES

Diamond Alkalies . . . indispensable products to many industries . . . are regularly shipped over three trunkline railroads to Diamond Distributors located in every important industrial center . . . No matter where your plant is located, you can always depend *implicitly* on Diamond Alkali service . . . Carload shipments are routed direct . . . smaller quantities are available from local warehouse stocks . . . a service as convenient as your telephone.

Diamond Alkali Company

PITTSBURGH, PA., *and Everywhere*

DIAMOND ALKALIES

CHANGING, EVER CHANGING

Irresistible as the tides are the changes that are constantly occurring all about us, in life's every activity—in every industry. To be a part of, to anticipate, to understand those changes, is to be alive, progressive. "The only certain thing is change."

How true that has been in the textile industry! Time deals ruthlessly with all who resist change. So, as another year comes up over the horizon, we greet it with pleasurable anticipation as we contemplate the new experiences, the new friends and the new contacts with old friends, that will be ours in this great year of 1932, our thirty-first year of service to the textile industry.

JACQUES WOLF & CO.

Manufacturing Chemists and Importers,

PASSAIC, NEW JERSEY

WAREHOUSES

PROVIDENCE, R. I.
UTICA, N. Y.
PHILADELPHIA, PA.
GREENVILLE, S. C.
CHICAGO, ILL.
CHATTANOOGA, TENN.

DIASTAFOR
used in WORLD'S GREATEST AIRSHIP

AMONG other products used in treating the base cloth of gas cell and outer cover fabrics on the Navy's new airship Akron, built by Goodyear Zeppelin Corporation, DIASTAFOR played a part in removing the particles of starch without impairing the strength.

Textile men all over the country rely on DIASTAFOR for sizing and desizing their cottons, rayons and mixed goods. This agent gives fabrics a wonderfully soft feel and insures better bleaching and dyeing. Easy to use! No change in plant set-up necessary! Let our technical man advise you or write to—

DIASTAFOR

Diastafor Department

STANDARD BRANDS INCORPORATED

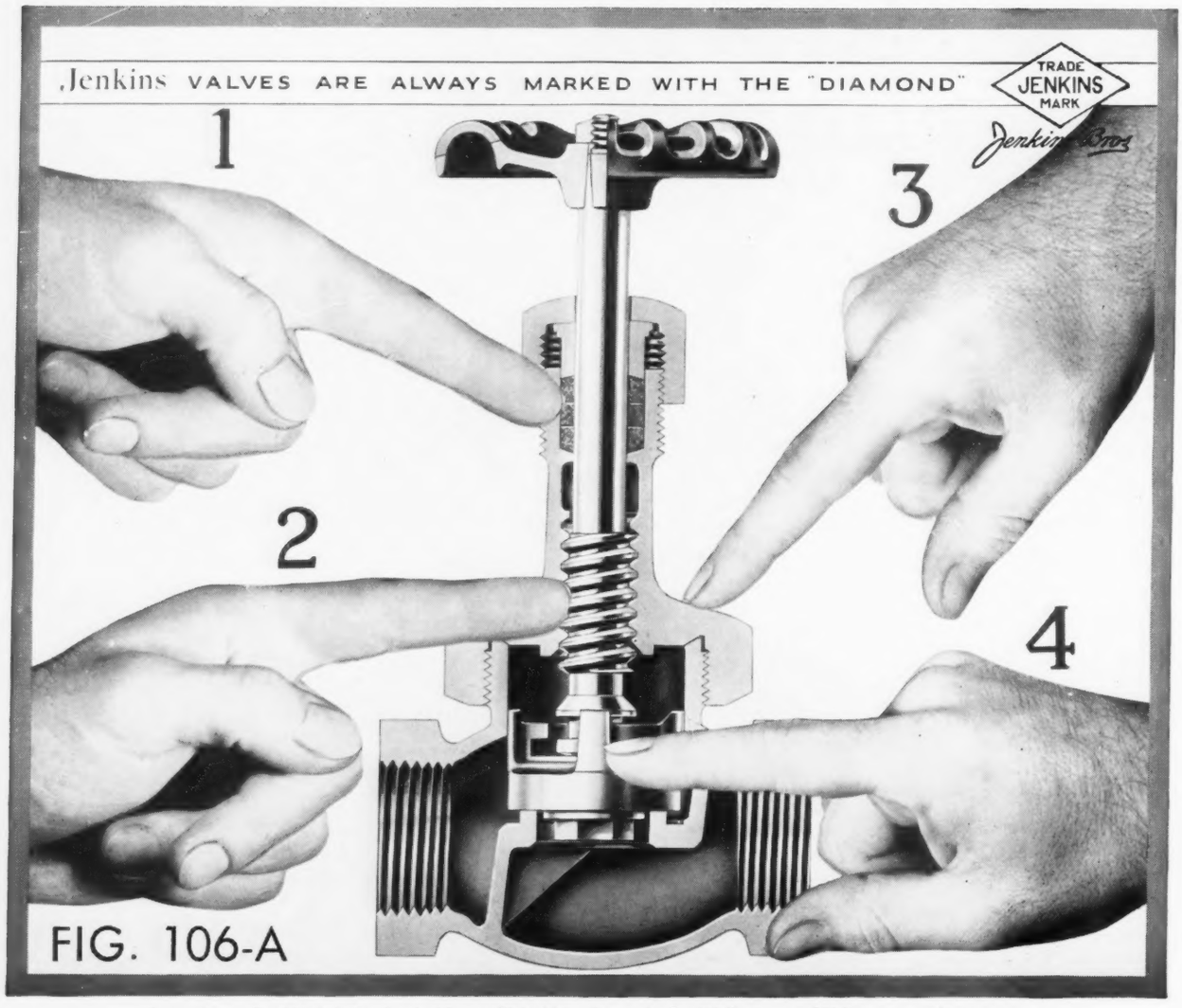
595 Madison Avenue • NEW YORK, N. Y.

Among Cotton's Readers

A. B. BRANNON, Gen. Supt.,
Entwistle Mfg. Company,
Rockingham, N. C.

"IN MY opinion, COTTON offers a great opportunity for superintendents, overseers or any other men interested in textile work to improve their ability. COTTON always contains very helpful ideas and discussions."

A. B. Brannon



Sectional view, Fig. 106-A Jenkins Standard Bronze Globe Valve, Screwed. For 150 lbs. steam or 250 lbs. water working pressure.

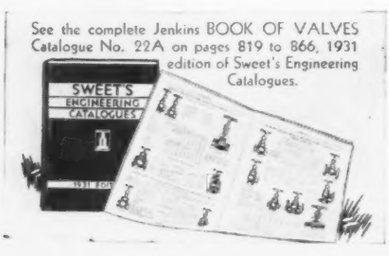
1. Extra deep stuffing box. 2. More spindle threads in contact. 3. One-piece screw-over bonnet. 4. Slip-on stay-on disc holder.

STRENGTH dominates in this new Fig. 106-A Jenkins Standard Bronze Globe Valve. In the liberal proportions of the parts, in the generous quantity of metal, as in the uniform and skillful distribution of this metal, stamina and endurance are apparent.

The bonnet is a single solid piece. No chance here of any distortion or springing, even after the bonnet has been removed and replaced repeatedly. Generous hexagon faces provide a good grip for the wrench.

Then there is the slip-on stay-on disc holder. This, like the one-piece screw-over bonnet, is an exclusive Jenkins feature. It makes possible renewal of disc quickly, conveniently and safely.

A study of the sectional view above will reveal other advantages. Fig. 106-A and the corresponding valves in angle, cross and check patterns offer this extra value at no extra price. At your supply house.


See the complete Jenkins BOOK OF VALVES Catalogue No. 22A on pages 819 to 866, 1931 edition of Sweet's Engineering Catalogues.
SWEET'S ENGINEERING CATALOGUES

◆

JENKINS BROS.

80 White St., New York, N. Y.; 524 Atlantic Avenue, Boston, Mass.; 133 No. Seventh St., Philadelphia, Pa.; 646 Washington Blvd., Chicago, Ill.; 1121 No. San Jacinto, Houston, Texas. JENKINS BROS., Limited, Montreal, Canada; London, Eng. Factories: Bridgeport, Conn.; Elizabeth, N. J.; Montreal, Canada

Jenkins
BRONZE IRON STEEL
VALVES
Since 1864

Vol. 96 **COTTON** No. 1

January, 1932

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director

ROBERT W. PHILIP, Editor

Contents

General and Technical—

The Relation of Ginning to the Spinning Quality of Cotton ---- 29
Accident Prevention—A Cost Factor in Textile Mills ---- 34
What I Found Out When I "Checked Up" on Things in My Own Mill ---- 37
Causes of High Power Costs ---- 40
A Description of the Sanforizing Process for Pre-Shrinking ---- 41

Current Topics—

Talk of the Month ---- 45
The General Situation in Textile Markets ---- 45
New England Mill Situation ---- 45
Curtailment Schedule ---- 46
Changes in Cotton Contract ---- 47
Marketing Study by Textile Foundation ---- 47
The North Carolina Association Meeting ---- 47
The Tyranny of Taxes ---- 48
What the Southern Mills are Doing ---- 48
Comment on the Cotton Market ---- 49
New Textile Equipment and Publications ---- 50
News Items with a Textile Slant ---- 64
Notes About Men You Know or Know About 66
An Old-Timer Says ---- 69

How Other Men Manage—

It's the Relative, Not the Actual Humidity ---- 73
What Is the Life of Spinning Bands? ---- 74
Question on Winding for High Speed Warping ---- 75
Answers to Card Room Questions ---- 75
Foundations and Vibrations in the Textile Mill ---- 79
Random Comments on Recent Discussions ---- 81
Proper Bore of Trumpets ---- 89
The Fallacy of Cutting Prices ---- 91

Knitting Section—

Efficient Methods for the Finishing Department of a Hosiery Mill ---- 95
Getting Work to the Dyehouse ---- 101
Cross-Dyeing Cotton Hosiery ---- 101
Preventing Holes in Full-Fashioned ---- 102
An Unusual Problem ---- 102
Proper Methods for Finishing Department ---- 102
More About Double Sole Plaiting ---- 105
A System of Ribber Pattern Layouts ---- 107
"Needle Finder" for Seamless Machines ---- 109
The Knit Goods Markets ---- 110
Among the Knitting Mills ---- 121
The Yarn Market ---- 122

Published Monthly by

W. R. C. SMITH PUBLISHING COMPANY

Atlanta, Ga.

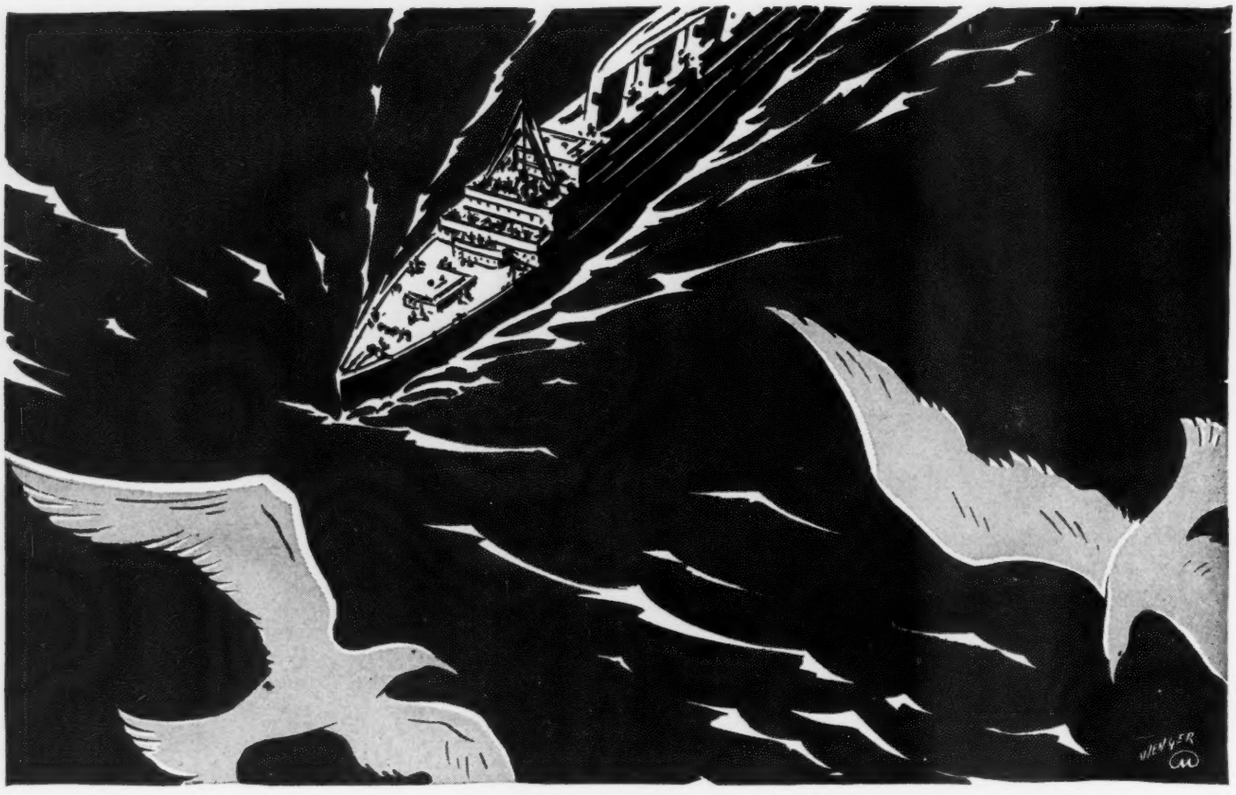
JOHN B. SHAW, *sales manager*, 39 Grove St., Auburndale, Mass. Boston Exchange, West Newton 1031.
W. S. CUSHION, *vice president*, 506 The Arcade, Cleveland, Ohio.
JOHN C. COOK, *western manager*, Room 864, 228 No. LaSalle St., Chicago, Ill.
W. A. McGEE, *Carolina manager*, Box 1162, Charlotte, N. C.

Publishers also of
ELECTRICAL SOUTH
SOUTHERN AVIATION
SOUTHERN HARDWARE
SOUTHERN POWER JOURNAL
SOUTHERN AUTOMOTIVE JOURNAL

PUBLISHED MONTHLY
ANNUAL SUBSCRIPTION—$1.00
CANADA—$1.50; FOREIGN—$2.00

MEMBER OF A. B. P.
MEMBER OF A. B. C.

EDITORIAL AND BUSINESS OFFICES
Grant Building, Atlanta, Ga.



PILOTING THE BUSINESS SHIP TO *better profits* IN 1932

BUSINESS SHIPS that sail the commercial seas will require most skillful piloting this year—to follow the course to *profitable* sales, ignoring the siren call of volume-at-any-price. ● ● ● The needs of 122,000,000 men, women and children must be met. Those firms which offer a discriminating public the soundest of values will arrive at the port of Volume-with-Profit! ● ● ● To such forward-looking manufacturers SPUN-LO is a valuable aid. The product is right. The policy of selective distribution is constructively helpful. Commodities made of SPUN-LO are out of the realm of profitless competition. ● ● ● Let Industrial help you chart your course.

INDUSTRIAL RAYON CORPORATION

General Offices: 9801 Walford Ave., Cleveland, Ohio

Plants: Cleveland, Ohio; Covington, Virginia

SPUN·LO

COTTON

Vol. 96 January, 1932 No. 1

The Relation of Ginning to the Spinning Quality of Cotton

By H. H. Willis, Director
Textile Department, Clemson College

IF YOU think improper ginning does not affect, very definitely, your profits, this article will enlighten you. It describes forcibly the injuries to cotton when it is not ginned properly, and points to the importance of the mills interesting themselves in different ways in the matter and of encouraging and insisting upon better ginning.

Those interested in pursuing the subject further will be furnished with copies of the article, "Effects of Properly Ginned Cotton," upon request.

HOW IMPORTANT a factor is ginning in its relation to the spinning quality of cotton? Is ginning reflected as a profit or a loss in the balance sheet of the average mill plant? What is the relation of ginning to waste in cotton, to ease in manufacturing and to quality in the finished product? What constitutes proper ginning? What can mills do to encourage good ginning? The cotton manufacturer should give serious consideration to these and related questions, for such questions have a vital bearing both upon the profit of the individual mill and upon the future of the textile industry. This article proposes to answer in part the foregoing questions.

The textile industry of today is seeking remedial measures. Remedial measures are no doubt necessary and useful but, in the long run, preventive measures are far more effective. Many mills are expending time, money and effort in trying to counteract the damage done by improper ginning. The logical thing for the mills to do is to see that the cotton is properly ginned and thus eliminate the train of cumulative evils for which poor ginning is responsible. No matter how superior the equipment of the mill and how skilled its operatives, it is impossible to produce a first rate product out of second rate material. The indifference of most mills to ginning in the face of this fact is amazing. It is equally amazing that a manufacturer who would not think of accepting damaged office supplies often accepts gin-damaged cotton without question. At every stage of manufacture gin-damaged cotton is more costly to process than similar cotton properly ginned.

At this point let the writer state that he is not implying that all or most ginning is done improperly. A number of leading gin companies have spent considerable money in research toward the improvement of their gins and have made commendable progress. What the writer wishes to emphasize is that ginning should be standardized and supervised since gin- damaged cotton represents a tremendous, preventable loss both to grower and manufacturer. With a reasonable amount of attention to ginning on the part of all parties concerned, a marked improvement could be effected in most cases without any drastic changes. Furthermore, it is not safe to assume that a gin plant necessarily is doing excellent work because its equipment is modern in every respect; neither is it fair to assume that an old gin is doing poor work. Equipment alone does not determine the quality of the product. For instance, a mill may have the latest possible equipment for cotton manufacturing, yet through negligence or improper settings of the machines may produce weaker and less uniform yarns than those produced in a mill using old types of equipment properly set and operated.

Ginning in the past has been accepted merely as a necessary preliminary step in the preparation of cotton for the market. The plant breeder and farmer have concerned themselves primarily with the variety of cotton, its staple, yield, early maturity, and methods of harvesting; the manufacturer has emphasized the qualities of fiber strength, uniformity, low percentage of waste and smooth processing. Thus improvement of cotton has been approached from both ends, but the intermediate process, that of ginning, has been neglected.

To a great extent the grower has felt that his responsibility ended when he turned his cotton over to the gin, and the manufacturer has assumed responsibility only upon the purchase of the cotton in the bale form. The ginner, of course, is interested primarily in output, and for the most part neither grower nor manufacturer has challenged the quality of the ginning. However, the efforts of the plant breeder and grower to produce superior cotton are often nullified by improper ginning. In their disregard of ginning both grower and manufacturer are losing money; the grower, in that grade and hence price may be lowered by improper ginning; the manufacturer, in that poor ginning is responsible for a product of lower quality.

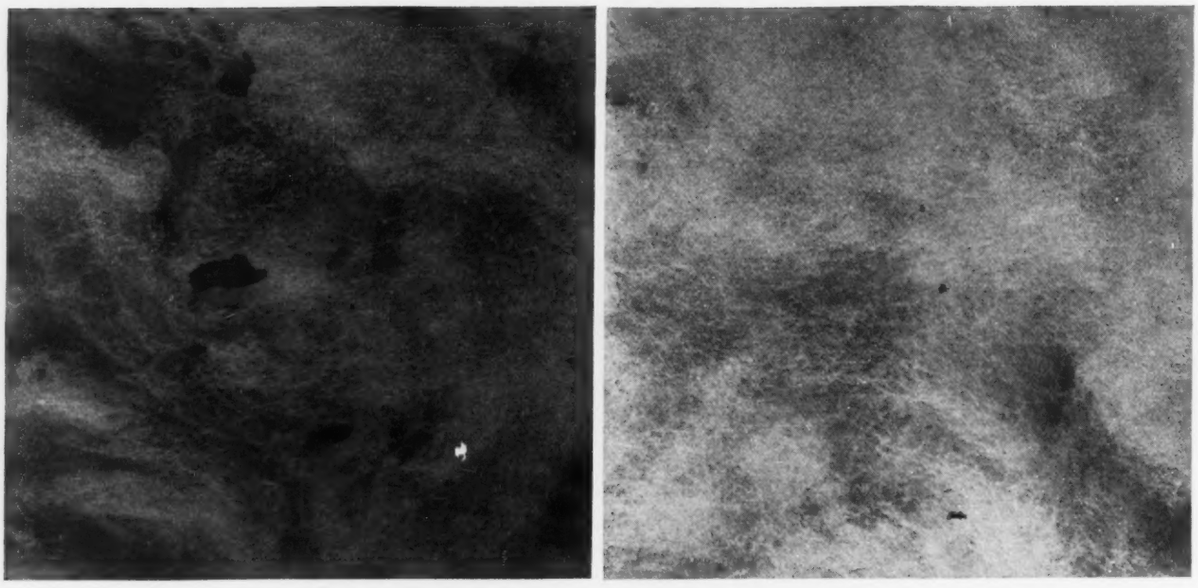


Fig. 1. These two samples, magnified five times, were grown in the same field, by the same man, and taken from the same wagon. Left, an improperly ginned sample, right, a correctly ginned sample.

When mills as a whole come to regard ginning as the initial process in manufacture and assume responsibility for it, the ginning industry will be revolutionized.

What is Meant by Term "Gin-damaged" Cotton?

Before entering further upon the discussion, perhaps it would be well to define to some extent the terms "ginning" and "gin damaged cotton" as used in this article. Ginning has been well defined as follows: "By ginning is meant the entire sequence of opening, cleaning, and moting incidental to separating the cotton from the seed."(1) Gin-damaged cotton is characterized by some one or all of the following: (1) Tangled and matted fibers, (2) cut fibers, (3) presence of excessive foreign matter, and (4) presence of motes, neps, and fuzz. Figures 1 and 3, representing poorly-ginned cotton as contrasted with samples representing well-ginned cotton, illustrate the gin damage discernible by the eye. Note the smoothness and fluffiness of one sample as contrasted with the roughness of the other. The less evident but more serious injuries are cut fiber, neps and fuzz. These are of concern to the manufacturer in that they present difficulties in every manufacturing process to a greater or less extent. Arrays of fibers in Figures 3 and 4 give some idea of what may happen in ginning. These arrays illustrate forcibly the effect of improper ginning upon the length and uniformity of the fibers, which characteristics are responsible for quality or lack of it in yarns.

An array of fibers is simply a mechanical process of assorting them according to length. To illustrate: If a company of soldiers is lined up irrespective of height, an irregular shadow is cast, whereas, if the same company is lined up from the tallest to the shortest man, the shadow cast gives a smooth curve similar to those which are shown in Figure 2. So in these arrays, the fibers have been lined up in order from longest to shortest by means of a sorting machine. A smooth curve was then drawn through the top ends of the fibers. All the fibers coming within each given length of staple are weighed, the per cent of fibers in each group being based upon the total weight of the sample arrayed. There are at least four different sorting machines on the market which are similar in principle and give similar results.

If mills would array some of their own cottons, they would see clearly the necessity for a more uniform staple in that there is considerable variation among cottons of the same staple. An Arkwright test made by Oliver G. Murphy illustrates this point. Mr. Murphy, by means of a sorting machine, stapled samples from some twenty bales of cotton grown in six different states. These samples had all been classed as inch cotton, yet this test showed that the percentage of inch staple or better by state varied from 61.66 per cent as highest to 14.66 per cent as lowest. These samples were found to vary considerably not only in length but also in uniformity of fibers, some containing a much higher percentage of short fibers than others. This excess short fiber may have been to some extent a varietal characteristic in some cases, but no doubt in many instances improper ginning had broken long fibers and thus increased the percentage of short ones.

Conditions Contributing to Poor Ginning.

Poor ginning may be due to some or all of the following conditions: (1) Excessive dampness or dryness of cotton during ginning, (2) dull saws, (3) improper machine settings and speeds, (4) inadequate equipment, and (5) negligence. The kind and amount of cleaning equipment and the machine settings and speeds used must be adapted, or course, to the variety and staple of the cotton, the method of harvesting and other local conditions. The effect of dull saws and negligence at the gin require no discussion.

(1) Philip, Robert W., "Effects of Properly Ginned Cotton." Published in COTTON, April, 1928.

However, the first condition named—excessive dampness or dryness during ginning—is given far too little consideration. The maintenance of the proper humidity is generally recognized as one of the most important factors in the various cotton manufacturing processes. The fibers are processed with ease under proper humidity but offer resistance and difficulties under improper conditions. It is reasonable to assume that the proper amount of humidity is important in the gin as well as in the mill plant. In the irrigated sections of the Southwest the cotton is often so dry that the bale may contain as low as 4 per cent regain. Under such conditions the fibers are less pliable and many of them are broken in the ginning operation.

On the other hand in the rainfall sections of the cotton belt there is often excessive moisture during the ginning season. Mill men know that with excessive moisture the cotton will not run or draft satisfactorily, the fibers tending to stick to the rolls and to lap up. Cotton should not be ginned unless it is normal in respect to moisture, for otherwise the fibers are matted, cut and broken in ginning, and irreparable damage is done. Both of these extremes—excessive dampness and excessive dryness—should receive more attention at the gin. In the cotton belt as a whole excessive moisture no doubt constitutes more of a problem both to manufacturer and to ginner than does excessive dryness. Some manufacturers have tested ginned cottons for regain and claim that they have found as high as 12 to 20 per cent regain. This excess moisture is detrimental to the interest of both the grower and the manufacturer. Cotton ginned when too damp is likely to produce a sample rough in appearance. This, of course, lowers the grade and value of the cotton. This high percentage of regain cannot be maintained in the manufacturing processes. As the regain becomes normal, the loss in moisture is reflected in increased invisible waste, thus resulting in a loss to the manufacturer.

Well-ginned cotton (See Figure 1.) is clean—that is, reasonably free of motes, leaf trash and sand. It is also smooth in the sense of being free of tangled, matted and cut fibers. Well-ginned cotton is such cotton as offers least resistance to mill processes.

Improper Ginning in Relation to Spinning Quality.

The term "spinning quality" as applied to cotton includes fiber strength, fiber uniformity, low percentage of waste, smooth processing and other desirable qualities covered by the general term "character". Improper ginning definitely decreases the spinning utility of cotton and is costly for the manufacturer in that gin damaged cotton (1) contains excessive waste, (2) presents manufacturing difficulties, (3) increases labor cost, (4) detracts from appearance of finished product, (5) produces weaker yarns and (6) produces a less uniform product. These points, which are inter-related and more or less cumulative, will be discussed in the above order.

EXCESSIVE WASTE. Waste is an important item from various points of view. The greater the percentage of waste, the higher is the price per pound of usable cotton. To illustrate: Suppose cotton is bought at 18 cents per pound. The writer has tested cotton in which waste in the form of foreign matter and short fiber amounted to 19 per cent. Thus 95 pounds of the 500-pound net weight bale had to be discarded and the usable cotton really cost approximately 22 cents per pound. In this case the mill suffered a two-fold loss. Not only did the plant lose approximately one hundred pounds per bale of substance for which it had paid at the rate of 18 cents per pound, but in addition it had paid its operatives in picking and carding to handle this waste material.

Another aspect of excessive waste is the extra burden which it throws upon the manufacturing equipment and upon the mill operator. The cleaning of cotton is the joint function of gin, openers and pickers. If the gin has done its cleaning inadequately, it is almost impossible for the pickers to deliver a clean product to the card. Thus the functions of the card and subsequent processes are hampered to a

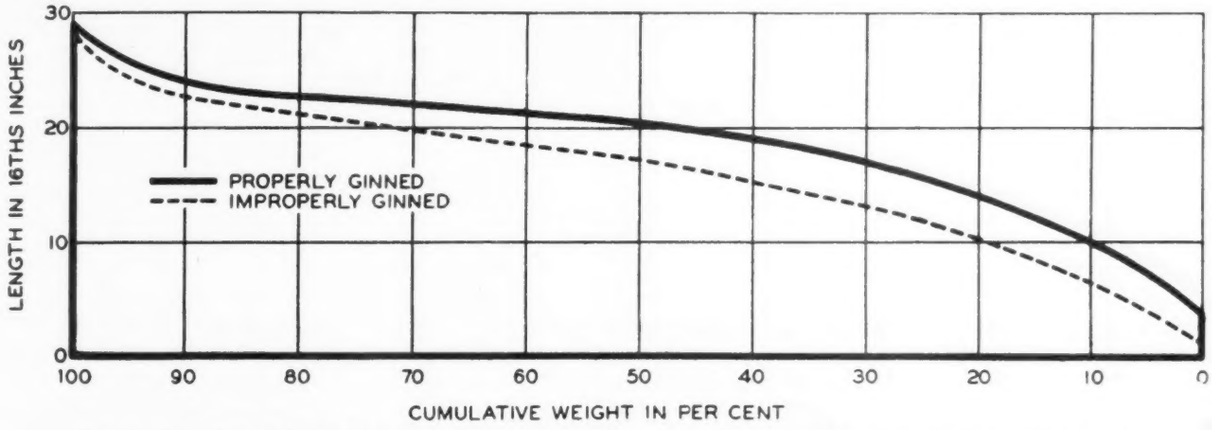


Fig. 2. The dotted line is a smooth curve representing the different lengths of staple in poorly ginned lint. Within reasonable limits the greater angle the curve makes with the base line the more irregular the staple. This sample possesses a high per cent of short fibers, some of which were no doubt broken inginning. The solid line shows a smooth curve representing the different lengths of staple in properly ginned lint. Note the greater length and uniformity compared with the other . . . . . .

greater or less degree.

Realizing the importance of thorough cleaning in the primary processes, many of the most progressive mills have recently made tremendous improvements in their opening and cleaning machinery. Why should not this interest extend back to the handling and cleaning of cotton at the gin? Measures taken at the gin to prevent damage to the fibers are far more effective than effort to repair the damage throughout later processes.

DIFFICULTIES IN PROCESSING. The original cost of gin-damaged cotton may be less per pound in that it is usually lower in grade, but the additional cost of processing such cotton often more than offsets the seeming saving affected, to say nothing of the trouble. According to gin specialists, when cotton is too closely ginned, from 3 to 5 pounds per hundred of short fiber may be added to the good lint. These short fibers and neps, many of which are not removed by the cleaning processes, simply float through and serve as a filler in the manufacturing processes. These tangled masses, when passed through the card, frequently break good fibers. Furthermore, end breakage in spinning usually runs high with such cotton. It stands to reason that tangled or matted fibers offer resistance to machining, are processed with difficulty, and lower the quality and appearance of the finished product.

INCREASED LABOR COST. Difficulties in processing are inseparably accompanied by increased labor costs. Poor running work with the resultant breakage and machine stoppage causes machine hour cost to mount alarmingly. When using gin damaged cotton, it takes longer and costs more to produce an inferior product.

APPEARANCE OF FINISHED PRODUCT. It is practically impossible to make a first class finished product out of cotton seriously damaged at the gin. Neps are discernible and the excess short fibers, which float through, form thick and thin places in the yarns and fabrics. Furthermore, leaf trash, which should have been removed at the gin, becomes pulverized in the manufacturing processes and much of it continues to adhere to the yarn. Some of these defects and particles are discernible in the finished product and lower its market value.

WEAKER YARNS AND FABRICS. The presence of tangled, matted and cut fibers in gin-damaged cotton is responsible for weaker yarns and fabrics. Not only do such fibers fail to contribute their share to the strength of the yarn, but during processing they often break good fibers. This is a matter for serious consideration in that yarn is judged more upon the basis of strength than upon any other quality, and its degree of strength bears a very close relation to its market value.

LESS UNIFORM YARNS AND FABRICS. Fibers which are cut or tangled in ginning necessarily detract from the uniformity of the finished product. Within narrow ranges, a yarn of lower average strength possessing uniformity is to be preferred to a yarn of higher average strength lacking uniformity. Lack of uniformity results in an uneven product with thick and thin places. The thin places are like the weak links in a chain; they break first under strain. The writer has in mind a case in which umbrella cloth was the subject of controversy between manufacturer and buyer. Although the yarn used by the manufacturer was of sufficient average strength and according to specifications, the material did not hold up. Tests indicated that irregularity in the yarn was responsible for the difficulty.

Relation of Ginning to Grade and Staple.

Gin-damaged cotton is a poor bargain when one considers the excessive waste paid for at the price of cotton, the trouble and labor cost of eliminating such foreign matter, and the less attractive, less uniform and weaker resultant product. Furthermore, a mill which has acquired a reputation for a high-class, dependable, uniform product cannot afford to imperil

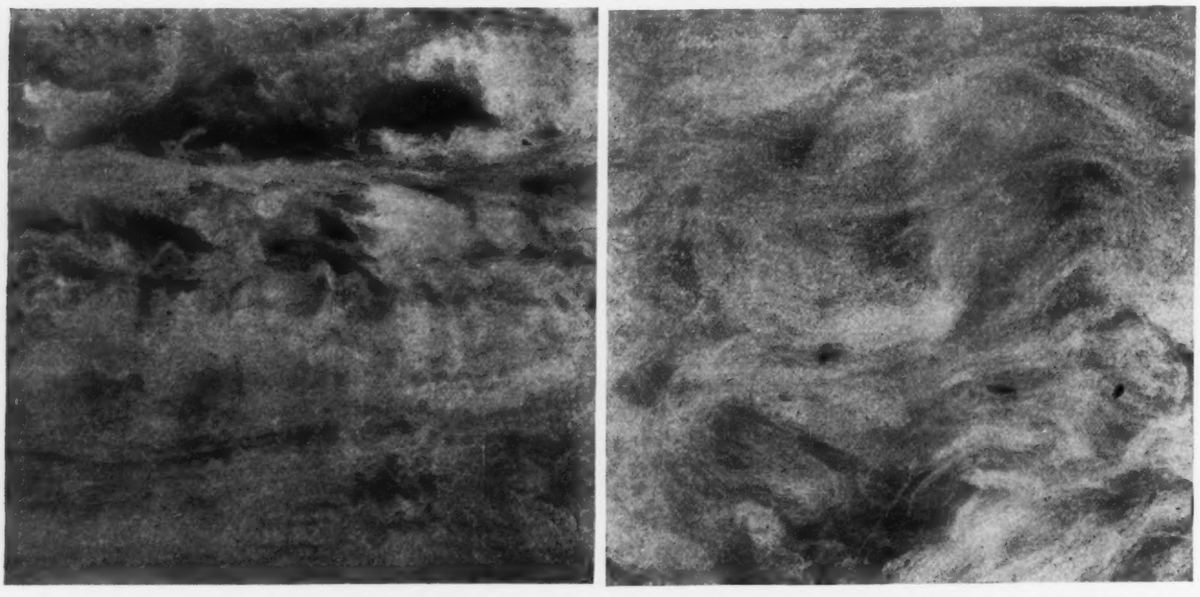


Fig. 3. Right, sample of well ginned lint; note its smoothness and fluffiness as compared with the sample at left, which is poorly ginned—rough and crumpled as a result of having been ginned when too damp.

its reputation by using gin-damaged cotton.

Ginning plays a most important part in determining the grade and staple of cotton. At first thought one may assume that improved grade and staple benefit the grower more than the manufacturer. It is true that the original cost per pound of the well-ginned raw stock is higher than that of lower grade, but it is equally true that the cost per pound of the finished product manufactured from properly ginned cotton is lower and its sale value is greater than that of the product made of gin-damaged cotton. Another thing to be taken into consideration is the effect of smooth-running work on the morale of operatives, especially those doing piece work. Grade, according to the U. S. standards for grade, depends primarily upon three factors: (1) color, (2) trash or foreign matter and (3) preparation or appearance. The two latter factors depend largely upon the methods of cleaning at the gin plant and the operations of the gin. Cotton properly ginned is graded from 1 to 2 grades higher than similar cotton poorly ginned. This is true of both long and short staple cottons. In 1921 a survey was made by the writer with a view to interesting the fine goods manufacturers in New England in the utilization of Pima cotton grown in Arizona.(2) One of the chief objections made to this cotton was that it was ropy and stringy because of poor ginning. One manufacturer stated that there "seemed to be an utter lack of appreciation of the requirements to be met in the manufacture of long staple cotton". On the basis of this survey, J. S. Townsend, Bureau of Plant Industry, U. S. Department of Agculture, invented what is known as the flapper roll attachment which is used on some of the long staple gins in Arizona. Similar samples of Pima cotton ginned with and without this flapper roll differed as much as 1-½ to 2 grades. The difference in the cotton was not in color or trash but largely in appearance, the cotton ginned with the flapper roll being smooth and fluffy and free from tangled fibers. The writer has seen this marked difference in grade between lots of similar short staple cotton ginned at different gins in Texas.

One of the leading plant breeders of the Southeast states that many of his varieties of cotton of 1¼-inch staple are reduced to 1⅛-inch through damage in ginning. This, of course, represents a financial loss to the grower, but no less a loss to the manufacturer. The manufacturer buys 1⅛-inch staple, but in his effort to straighten out the tangles and to remove the neps and short fibers incidental to improper ginning, additional fibers are broken and the average length of staple is still further reduced. Often one hears the statement that cottons grown in the Southeast are inferior in spinning quality to those grown in other sections. Various spinning tests have demonstrated that this statement is untrue of good varieties grown under favorable conditions. Much of this prejudice against southeastern cottons may be due to the spinning quality of the cotton having been damaged by improper ginning. The fact that 1¼-inch cotton grown in the Southeast is reduced in many instances to 1⅛-inch in ginning constitutes a serious problem, since it means that the manufacturers in the Southeast using 1¼-inch staple and above must import cotton from other sections of the cotton belt, or from foreign countries. That not only means a high transportation cost, but tariff duty as well for some staples.

How Can Mills Encourage Proper Ginning.

Many manufacturers in the Southeast are deeply interested in the home production of such cottons as will meet their demands. They have incouraged in various ways the growing of better cotton. In several instances mills have offered substantial prizes for the production of cottons fitted to their particular needs. As a result of their interest, in 1930 approximately 53 per cent of the total crop of some 800,000 bales grown in South Carolina was 15/16-inch or better in staple, as compared with approximately 35 per cent in 1928.

Furthermore, large cotton manufacturing plants in the Southeast in a number of instances purchased car-load shipments of cotton seed of some of the best commercial varieties and distributed it at oil mill prices to the cotton growers in the vicinity of the cotton mill with the understanding that the grower would give the manufacturer an opportunity to bid on the cotton when it was produced. This has resulted in convincing a number of mills that good varieties of cotton can be grown in the Southeast.

If the manufacturers and other business men would extend their efforts one step further and not only assist in the development of one superior variety of cotton in a given community but also establish gins to handle this cotton, it is believed that the mill would be able to secure a cotton of higher spinning utility, much more uniform in staple, and with less short fiber and fewer neps.

Probably the surest way in which the mills can get their cotton ginned as they want it is to establish their own modern gin plant, adopt standards of preparation, and operate the gin as a preliminary manufacturing process. The U. S. Department of Agriculture has available upon request, standard types of preparation which would no doubt be helpful. As an illustration of the advantages derived from proper ginning, the experience of the Profile Cotton Mills at Jacksonville, Alabama, in operating a gin in connection with their yarn mill is illuminating.(3) Other mills have had similar experiences.

To sum up, improper ginning lowers grade, shortens staple and definitely lessens the spinning quality of cotton in that gin-damaged cotton contains excessive waste and neps, increases machine hour costs, and produces a less uniform and weaker finished product. The damage done to cotton by improper ginning cannot be remedied entirely at any price; such damage, however, can be prevented at a comparatively low cost. Ginning is a cotton mill problem in that the product of the gin is utilized by the mill. Whether or not ginning will be improved depends primarily upon how much active interest in better ginning is evidenced by the manufacturer; he must take the initiative.

(2) Willis, H. H., "Utilization of Pima Cotton," Bulletin No. 1184. Published by U. S. Department of Agriculture, Washington, D. C., November, 1923.

(3) Philip, Robert W., "Effects of Properly Ginned Cotton." Published in COTTON, April, 1928.

Accident Prevention—a Cost Factor Factor in Textile Mills

Tenth of a Series of Articles on

PUTTING the TEXTILE HOUSE in ORDER

By Michael Welsh

FEW MILL EXECUTIVES pay enough attention to the accident problem of their plants. Practically all, however, are men who are vitally interested in their production costs and who possess at least an average amount of that attribute which has been called the milk of human kindness.

Too Much "Passing the Buck."

From either a cost standpoint or a humanitarian one, accident prevention in a textile mill or any other industry is a major factor. It is believed that there is more "passing the buck" in respect to accident prevention than any other one theory of importance in any way connected with mills.

Is it enough for the chief executives of a mill to take out liability insurance or make essential provisions to carry their own insurance and then leave the accident problem to insurance companies or to take care of itself? Is it enough for them to scan accident experience records and comment hastily upon snap-judgment findings? Can a practical accident prevention program be efficiently carried out in a mill organization without an ostensible active interest on the part of the executives?

A Practical Appeal to Practical Men.

The writer has often wondered why it is that mill executives pay so little attention to the accident problem in their plants, and he has just about come to the conclusion that two things are mainly responsible. The first is that they have never truly analyzed the accident situation and therefore have never been able to appreciate the many ramifications. The second is a condition which is largely responsible for the first. There have been too few appeals made in behalf of accident prevention which are practical enough to really impress the business mind of the average mill executive.

This belief is responsible for this article, and the writer will endeavor to appeal as practically as possible in behalf of this important and often neglected part of manufacturing. Efficiency and production cost factors are assuredly practical and are certainly worthy of consideration by those of the most rudimentary trends. An altruistic or humanitarian side, though of primary importance, will be treated secondarily, as some few, unfortunately, still prefer to consider it as something somewhat removed from business.

IN this article, Mr. Welsh defines accident prevention as being a definite item in cost of production—and no thinking reader will disagree after reading his careful argument for this point. Mill executives, operating heads and employees must all become "safety-minded"—each one of these elements can contribute an essential part to the reduction of accidents and the operation of an adequate safety program . . .

Industrial liability insurance rates, like all other insurance rates, are based upon experience. Two types of experience generally control the rates. The state, sectional or national accident experience for any one classification furnishes the basis for the liability insurance rates for that particular classification, and therefore each and every unit under that classification contributes by its accident record to the aggregate experience record which will in the end determine the premium rates. Then, too, most insurance companies make certain rate concessions to industries whose accident experiences are comparatively good. Therefore, from a rate standpoint, it does not take a Philadelphia lawyer to point out the advantages of a good accident record. Of course no one mill can very materially affect the basic rate, but if all mills were to really strive to reduce accidents and keep compensation costs down, their premiums would be materially reduced. Not being an insurance man, the writer has probably not given an orthodox analysis of the effect of accident experience on insurance rates, but he is thoroughly convinced that the mills have much more to do with the rates they must pay than either the insurance companies or the state supervisory departments.

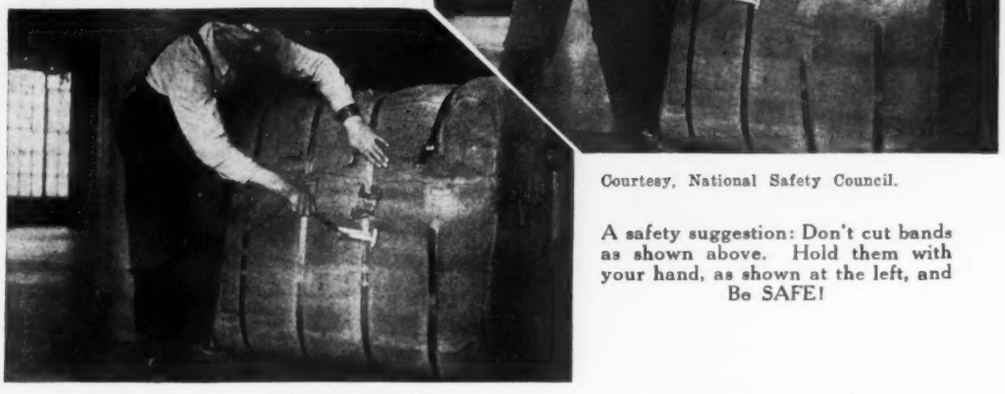
Self Insurer Should Consider Average Cost.

With the self insurer, accident cost is directly proportional to accident experience. The self insurer, however, should not make the mistake of considering his accident expense in the same light as he does many other expenses, for his average accident cost over a period of years is what really counts. A very expensive compensable injury occurring today may be the result of the creation of a potential hazard two years ago. Unsafe prac-

tices begun during one period often exact their costly and painful toll during another. The habit of ignoring minor injuries may prove inexpensive for a long time, but sooner or later a few infection cases will prove expensive indeed, and such expenses can not be correctly charged in their entirety to the period in which the infection actually occurred.

Costs Not Likely to Be Considered.

In discussing accident costs it would be amiss to fail to mention a few costs which are not as likely to be considered as doctor, drug and hospital bills, ambulance charges and compensation payments. When a worker is hurt quantity and quality of production generally suffer. The injured worker is most frequently not the only one to have his attention directed to things other than his assigned jobs. The more serious the injury the more confusion. If a man is seriously injured in a mill generally more than a day elapses before the plant actually runs normally again. The mental interest of the employees when a fellow worker has been hurt militates more against efficiency than do the usual physical disturbances in such times. Such costs are greater than one would expect, and insurance policies do not reimburse for them. They are real losses. Peace of mind and contentment on the part of employees are recognized as being indispensable to co-operation and efficiency. Employees are not and can not be expected to co-operate and put forth their best efforts if they are continually exposed to accident hazards.



Courtesy, National Safety Council.

A safety suggestion: Don't cut bands as shown above. Hold them with your hand, as shown at the left, and Be SAFE!

Provide a Safe Working Place.

From his own selfish standpoint as well as that of his moral obligation, it is the duty of every employer to provide a safe working place for his employees. To state what constitutes a safe working place is a large order, in fact, it is too large for the writer to give his own personal views in this article. Machinery should by all means be well guarded. Adequate lighting is indispensable to safety. Unsuitable tools and equipment are accident breeders. Splintery and slick floors are responsible for many injuries. The failure to provide for certain jobs equipment such as goggles and rubber gloves add to accident possibilities. Adequate first-aid and other emergency equipment available at all times are means to safer ends when employees receive slight scratches and other minor injuries and when more serious misfortune strikes. But it is not enough for a mill executive to provide the mentioned physical equipment and conditions and others equally important, for if he is really a disciple of safety he has more responsibility. George W. McCandless, vice-president of the Pennsylvania Manufacturers Association, recently said: "No man qualified to head a plant can be bigger than safety."

Safety-Minded Subordinates Essential.

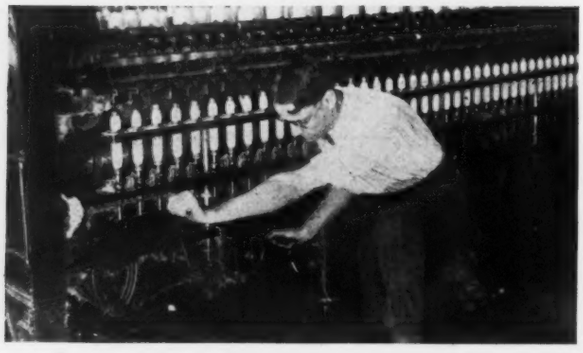
No mill executive, regardless of his personal knowledge, training and ability, can expect efficient productive results from his mill unless he has subordinates such as a superintendent and overseers of the various departments who are willing to and capable of producing such results. Physical equipment such as machinery is only an element in the productive end. Safety equipment and supplies are no more in mill safety. If a mill executive wants to protect his employees against accidents he must have key men who are also safety-minded. He must have department heads who don't think they are too big for safety, and they in turn must have second hands and section men who realize that it is their duty to prevent accidents. Too many plants have too many overseers and subordinate bosses who consider themselves either too important or too busy to pay much attention to accident prevention. The point the writer is trying to make here is that the responsibility for such indifference and laxity really belongs to higher-ups in the organization.

Production and Accidents.

If the production from the mill is below par, the superintendent is generally called for an important conference with the big boss, who watches those production figures rather closely. The superintendent, if he hasn't previously done so, calls a few others into conference and within a very short time that produc-

tion comes up, even if drastic measures have to be resorted to. If the big boss would interest himself one-tenth as much in accident records as he does in production records, accidents would materially decrease; and, why shouldn't he? His production affects cost. Accidents affect expense, production and employee welfare. Employee welfare alone is a vital factor in successful operation.

Accident prevention should not be considered as something separate and apart from the regular functioning of the mill. It should be looked upon as a defi-



Courtesy, National Safety Council.
From another National Safety Council poster:
Never Adjust Doffer Rail by Hand—

nite and indispensable part of it, and an effective practical safety program should be carried out just as a production schedule is followed. It, like the production program, should be modified when a change in circumstances demands it.

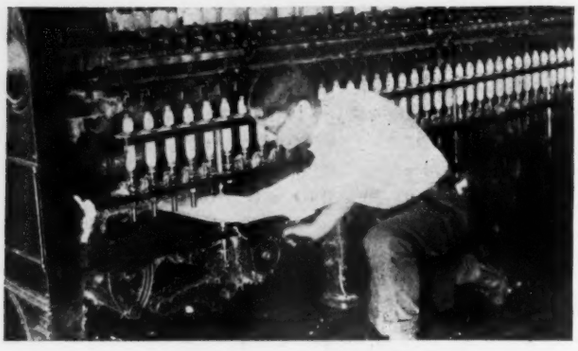
Restriction of space prohibits the giving of the fundamentals of a mill safety program, but anyone interested can get an abundance of material on the subject from his State's Industrial Commission, the National Safety Council or insurance company.

The writer will, however, give a few of his personal observations before closing this article.

Textile mills are having too many accidents which could be avoided if the physical condition of their employees were known, when they were employed, and periodically thereafter. Due also to the lack of this knowledge, either they or their insurance companies are paying for injuries, the responsibility for which does not legally or morally belong to the mills. Hernia cases are most conspicuous in this respect. Due to inadequate and unenforced safety rules, too many employees are being hurt, and too many others are abusing the provisions of compensation laws by trying to burden the mills with their outside injuries. Although the compensation laws are very liberal in regard to the time given for reporting accidents, no laws force mills to work people who do not report accidents immediately after they occur. The best medical service is the cheapest in the long run. Machinery manufacturers should be forced to provide adequate guards and interlocking devices before their products are purchased. The safeguarding of new machinery should be the builders' job and not the mills'.

Executives an Active Safety Force.

Mill executives should be an active guiding and consulting force in the accident prevention programs in their plants. They should realize that accidents are cost factors, that they affect the mental and physical



—The Crank Saves Your Hands!

welfare of their employees, and they should not forget that there are no "spare parts departments" for eyes, hands and legs, and that you can't really pay for pain and mental anguish.

Making Employees Safety-Minded.

It has not been the intention of the writer to leave the impression that accident prevention is an employee consideration alone, or that employers are either directly or indirectly responsible for all accidents that actually occur in their plants, for he knows only too well that in neither case is it true, but he conscientiously believes that if the employers will earnestly and aggressively develop and promote an adequate safety program in their mills they can, within a short time, cause their employees to shoulder their part of the responsibility. So he says in "putting the textile house in order," look into your accident problem!

Clemson Textile Department Adds Some New Equipment.

The textile department of Clemson College, at Clemson College, S. C., has recently installed several pieces of new equipment in the laboratories in the weaving and designing division. One of these machines is a 4-head Rhode Island braider built by the Fidelity Machine Co. of Philadelphia. It is suitable for manufacturing Jacquard lacing, fish lines, and round shoe lacings. The Merrow Machine Co. of Hartford, Conn., has just completed the installation of two of their most recent seaming machines. One of these is a Model 60D3B machine for producing a butted seam. The other is the Model 60RD machine for edging bedspreads, blankets, bath mats, and similar articles. Each of these machines is installed on a table especially designed for sewing machines and has an individual motor drive. An expanding and inspecting machine for hosiery and a countematic have been added in the knitting section. The countematic records automatically the number of hose passed through the instrument. These machines are built by Edward R. Ammon of Reading, Pa.

The chemistry and dyeing division of the school has installed a "Lightnin" mixer equipped with a monel metal propeller; this is made by the Mixing Equipment Co. of Rochester, N. Y., and is used in conjunction with the Hussong skein dyeing machine. The carding and spinning division has installed the latest improvement in the Casablancas long draft spinning equipment.

What I Found When I "Checked Up" on Things in My Own Mill.

By a Superintendent

HERE a well-known southern mill superintendent gives the methods and some of the findings of his system of investigating operating conditions at his plant. The article is written in the thought of moving other operating executives to do the same thing at their plants. The best of us are inclined to overlook those small details which can play havoc if they are allowed to run away with us. This man's advice of constant vigilance and an open mind is indeed worthwhile . . . . . .

IN THIS DAY of close competition, research and experimental work it behooves every mill superintendent and executive not to be satisfied to just keep out of a rut, or to feel that he is doing as well as the average; he had better keep away from that feeling, "for let him that thinketh he standeth take heed lest he fall."

Owing to the many different equipments of our mills, grades and irregular grades of cotton used, I have found after 30 years' experience as superintendent that it is profitable occasionally, say about once or twice a year, to make a personal check-up on all drafts, twists, speeds, and production from the lappers to the looms. In doing this with an open eye and open mind surprises, both agreeable and shocking, will be revealed. I have just done this, and in this article I am going to give the results that I found, not with any idea whatsoever of hoping to show superiority, but in the thought that it may prove of interest and help to others; also, that it will prove the stimulus for prompting someone else to present their views and experiences.

Let us suppose that our stock is Low Middling, from ¾-inch to 15/16-inch staple, and that we are making 28s warp and 30s filling yarn from which we shall make from 5.60 to 6.10-yard sheeting.

A check-up on lappers revealed:

LAPPERS CHECK-UP.
(3 process picking, breaker, intermediate and finisher.)

3 blade beater, 960 r.p.m.	36 blows per inch
2 blade int., 1030 r.p.m.	42 blows per inch
3 blade Kirschner, 950 r.p.m.	50 blows per inch
Total	128 blows per inch

During a recent test, variation in weights of breaker laps ranged from 44 to 49 pounds, while the finisher laps weighed from 43.50 to 44.50 pounds. Card sliver variation on 30 cards, one sample being weighed from each card, was from 50 to 57 grains. Why was this so? The answer — different card settings, unevenness of laps, condition of card clothing, and many other causes.

I am a firm believer in calibrating all trumpets on the cards and drawing frames occasionally. Many surprises may be unfolded by these inspections, especially on the drawing frames where there are so many short studs that are hidden out of sight, and often out of mind, until cut and uneven roving becomes so noticeable at the slubbers.

We weigh all of our finisher and intermediate laps, but only weigh one breaker lap from each machine twice daily. We run our drawing at about 275 r.p.m. The figures in Table A show how our lap, sliver and drawing weights run.

I hope you will bear in mind throughout this article that the results I am giving here are those that I found in making these tests myself. The one thing that I would like to drive home is the importance of the superintendent himself going into the mill and making such tests occasionally. In obtaining the cylinder and licker-in speeds, I found that there is very little variation in the cylinder speeds of the different cards, but that this is not so with the licker-in. As will be seen by the table on cylinder and licker-in speeds, Table B, I found only a variation of 4 r.p.m. on the cylinders, this being from 164 r.p.m. to 168 r.p.m., while the variation of the different licker-in speeds amounted to 15 r.p.m., being from 415 r.p.m. to 430 r.p.m.

I attribute the small variation of cylinder speeds and the rather large variation of licker-in speeds to

TABLE A.

Breaker Picker Laps (lbs.)	Finisher Picker Laps (lbs.)	Card Sliver (grs.)	Breaker Drawing (grs.)	Finisher Drawing (grs.)
47	44.25	56.00	56.00	59.50
44	44.00	54.00	55.00	59.00
45	43.50	56.50	58.00	60.00
47	44.00	57.50	58.50	60.50
48	44.00	56.00	58.50	61.00
48	44.50	56.00	58.50	61.00
47	43.50	50.00	55.00	59.50
49	43.75	53.00	55.50	61.50
48	43.75	55.00	57.00	60.00
46	44.50	55.00	58.00	60.50
47	44.25	55.00	59.00	59.00
48	44.50	51.00	58.50	62.50
47 Avg.	44.04 Avg.	54.70 Avg.	57.31 Avg.	60.33 Avg.

TABLE B

Card No.	B.P.M. of Cylinder	B.P.M. of Licker-in
1	166	427
2	164	415
3	166	419
4	166	424
5	165	418
6	167	424
7	166	425
8	165	427
9	166	430
10	165	421
11	166	426
12	165	427
13	165	422
14	168	425
15	165	419
16	168	426
	165 Avg.	423 Avg.

the fact that, due to the weight of the cylinder, when its speed is once attained its centrifugal weight will keep it up, but the speed of the licker-in is varied by the heavy lumps and tufts of cotton that it has to encounter. It pays to deal with this member fairly and not let it suffer. It also pays to deal the same way with the coiler gears. They are so often neglected, probably because they are out of sight, and they can and do cause a lot of bad work before the stock reaches the drawing frames.

The figures in Table B, showing the cylinder and licker-in speeds, were secured by taking the speeds on 16 different cards.

I think it more important to keep the waste made at the card at a minimum than that on any other machine. In an effort to attain this, quite frequently I run tests on this machine myself to determine the waste being made. The results of my last test made on the cards are shown in Table C, showing flat strips and cylinder strips. The weights given of flat strips and cylinder strips in ounces represents the strips made during a period of 3½ hours, as the cards are stripped three times daily. As will be seen by the weights of individual flat strips, it is not uncommon to find a variation from 15 to 20 grains in the weight of strips taken from individual flats. This is due to the card settings.

TABLE C.

Card No.	Wt. of Flat Strips	Wt. of Cylinder Strips	Wt. of Individual Flat Strips
1	16 ozs.	4 ozs.	21.50 grs.
2	22 "	5 "	34.00 "
3	16 "	4 "	23.00 "
4	16 "	5 "	20.00 "
5	15 "	4 "	22.00 "
6	16 "	4 "	19.50 "
7	15 "	4 "	16.00 "
8	12 "	5 "	20.50 "
9	14 "	4 "	17.00 "
10	14 "	5 "	18.00 "
11	16 "	4 "	24.00 "
12	12 "	4 "	16.50 "
	15.3 Avg.	4.3 Avg.	21.17 Avg.

The importance of keeping waste at the card at a minimum is shown by Table D, as it will be noted that the waste made at this machine represents approximately 50 per cent of the mill waste.

It is well to keep each roving frame numbered with large figures for record purposes, for it will often be found that frames of the same make and age will have habits as different from each other as the habits found in different people. Why is it that some frames will run so much better than others, even where the frames are running side by side? There are many causes, such as uneven tension, worn spindles, worn bolsters, worn steps, flyers worn out of balance, flyers needing cleaning or polishing inside and outside, worn pressers, excessive vibration in frames, roving trumpets needing cleaning or adjusting, roving traverse stroke being too short, and blunt skewers causing excessive strain.

It is time well spent to occasionally count the actual twist being put in on the different machines. For instance, take six bobbins from each slubber, intermediate and speeder and count the twist in each. Do this by dividing the inches delivered per minute by the front rolls into the spindle speed. Four inches should be taken from each bobbin and inspected to see that there is practically the same amount of twist in each bobbin of the same twist counter. If a great difference exists, it should be seen that the different frames have the correct constant and the correct twist for that constant.

Recent tests made on roving frames where Low Middling cotton was used showed the following:

SLUBBER.		
Roving	.58	hk.
Spindles per frame	60	
Ends down per hour per spindle	.60	
Twist per inch	1.00	
Spindle speed	750	r.p.m.
Draft	4.18	
INTERMEDIATE		
Roving	1.50	hk.
Spindles per frame	100	
Ends down per spindle per hour	.70	
Twist per inch	1.85	
Spindle speed	930	r.p.m.
Draft	5.14	
SPEEDER.		
Roving	4.50	hk.
Spindles per frame	160	
Ends down per spindle per hour	1.33	
Twist per inch	3.85	
Spindle speed	1,300	r.p.m.
Draft	6.0	

During the past half century more improvements have been made on carding and weaving than on spinning, though recently, say during the past five years, more attention has been given to spinning. Many mill owners and managers are going in strong for long draft, and from the present trend of indications and accomplishments, it would seem that the spinning end of the textile industry is catching up with both carding and weaving.

TABLE D.
Quarterly Waste Report.

No. of bales opened	1,047	
Gross weight	539,926	lbs.
Net weight	516,864	"
Waste	**Pounds**	**Per cent**
Strippings	12,917	2.50
Sweepings	13,445	2.60
Flyings	12,440	2.41
Motes	11,121	2.15
Hard Slasher	352	.007
Soft Slasher	743	.14
Clearer	859	.17
Weave Hard	505	.10
Filling	626	.12
Spooler	322	.006
	53,330	10.32
Bagging and ties	23,062	4.27
Total	76,392	14.59

The writer recently saw a miniature spinning frame of only two spindles producing a fair grade of 30s warp yarn from a 60-grain drawing sliver, thus eliminating slubbers, intermediates and speeders. This is food for thought, but until these more modern inventions are perfected, we should seek to improve and make the best of what we have.

Much research work has been done in recent years to improve spinning processes, and much good has resulted from this work. The ends down per thousand spindles per hour have been reduced from 150 to 50 and less.

I believe that attention to the following items would improve the running of any spinning: grading of staple; better mixing; lessening the re-worked waste; stretched roving; banding; oiling and cleaning; proper humidity control; more attention to changing of rings and travelers.

I think that the spinning frames should also be numbered for sizing purposes; also, to make comparisons for both speed and production. Here, as on the roving frames, the twist being put in on the different frames should be checked rather often.

TABLE E.

Wt. of 120 Yd. Sample	Breaking Strength
36 grains	55 lbs.
36 "	60 "
38 "	54 "
36 "	56 "
36 "	58 "
37 "	56 "
37 "	58 "
36 "	58 "
35 "	56 "
36 "	54 "
27.55s yarn (warp)	56.50 lbs.

It should always be kept in mind that there is a reason for every end being down that we see down in the spinning room. Our next step then should be to find the remedy.

I took yarn from 10 different frames and made sizing and breaking strength test, the results being shown in Table E. On these frames we were making 27.50s warp yarn, having 23.27 turns of twist per inch. The front roll speed was 123 r.p.m., the spindle speed 9,000 r.p.m., and the draft was 12.20.

For a mill that uses a rather low grade of cotton, the spooling room, where the old-style slow speed spooling and warping is used, is a veritable cleaning house for the weavers' benefit. After the yarn has been spun and sent to the spooling room, if the guides or slub catchers have been properly set, say using a No. 12 gauge, the fact that the spooler, in addition to tying up her normal number of 200 bobbins per hour, has to tie 50 additional ones that break, should cause us to stop and try to find out why she has to tie up this additional 20 per cent. However, if these imperfections were not caught here, the production per loom would be greatly reduced. Our warper reports show clearly that many weak places are caught at the spooling process, as our warpers run nearly 3,000 yards per hour without a stop. The additional strength and weight added at the slashers, is of course governed by the amount required.

Each day we go into the mill and note the number of looms stopped at that particular time. As will be seen by the test reported in Table F, one day we go in at, say, 11:30 A. M., then the next day at 8:30 A. M. In this check-up we only list the percentage of looms stopped of the total looms running.

We also run hourly tests several times each week of different sections of looms to determine the causes of the stops. We take a section of 50 looms, and for a given length of time we make a record of the number of stops and the cause of each stop. On a test we recently ran on two different sections, the average speed on one section being 144.6 picks per minute and that on the other 145 picks per minute, we found we had stops due to the following causes: gouts, 78; knots, 86; kinks, 104; broken ends, 162; loose ends, 56; looms knocked off, 44; out of fix, 18. The total stops amounted to 548 and the number of loom hours to 1,143, which gave .48 stop per loom per hour.

TABLE F.

Date	Time	No. Looms Stopped	Looms in Operation
9/ 1/30	11.00 A.M.	5	324
9/ 2/30	8.30 A.M.	9	324
9/ 3/30	10.30 A.M.	10	324
9/ 4/30	9.00 A.M.	7	324
9/ 5/30	7.05 A.M.	9	324
9/ 5/30	3.00 P.M.	13	324
9/ 7/30	1.30 P.M.	11	324
9/ 8/30	2.30 P.M.	9	324
9/ 9/30	5.50 P.M.	4	324
9/10/30	7.00 A.M.	10	324
9/11/30	5.40 P.M.	6	324
9/12/30	7.00 A.M.	7	324
		8.33 = average number of looms stopped, or 2½ per cent.	

Favorable Freight Tariffs Extended.

Another step has been taken looking to an increased industrial use of cotton cloth. The Cotton-Textile Institute have been advised by the Southern Freight Association that its recent revisions in freight tariffs in favor of cotton baling materials for cotton piece goods shipments in southern territory have been extended to apply as well to New England and the Trunk Lines' Association territory. These revisions allow bales and rolls of cotton yarn and cotton piece goods for freight shipments to be covered with 8-ounce cotton cloth, or with 3½- to 4½-ounce cotton cloth when the roll is protected by an inner wrap of paper. The use of cotton wrapping for these purposes hitherto had not been permitted.

It is expected that cotton textile manufacturers will generally avail themselves of this opportunity to utilize the product of their own industry in place of competitive materials commonly employed in the past.

The American Cotton Manufacturers' Association and the Cotton Manufacturers' Association of North and South Carolina, and officials of the Southern Railway and the Cotton-Textile Institute collaborated in making test shipments leading to this rate equalization on cotton baling materials.

:: :: ::

Textile Research to be Reviewed.

For the first time in the history of the textile industry a review of textile research, similar to annuals that have been published for some time for the chemical and other industries that are leaders in scientific research, is to be published by the United States Institute for Textile Research, Inc., covering results for the year 1931. This initial issue will be dedicated to the memory of its late president, Dr. Samuel W. Stratton, and will bear the imprint of the publications department of the Massachusetts Institute of Technology, Cambridge, Mass.

The board of editors for the annual consists of Prof. E. R. Schwarz, Mass. Institute of Technology, chairman; Dr. W. E. Emley, Bureau of Standards, Washington, D. C., E. D. Walen, Pacific Mills, Lawrence, Mass.; and Prof. L. A. Olney, Lowell (Mass.) Textile Institute. Each chapter will be contributed by a recognized authority on the subject covered. The volume will be ready for distribution in the spring.

Publication of the Annual was authorized by the executive committee of U. S. Institute at its meeting in Boston on December 4th.

Causes of High Power Costs

By C. T. Baker

Consulting Engineer, Atlanta, Ga.

WE understand that the plant referred to here was not a textile mill—but it might have been. At any rate, you will be interested in learning of the many different unnecessary power-using elements which were uncovered at this plant. Perhaps they will suggest some similar conditions in your plant, in some respects, that will cause you to make a thorough investigation to the end of saving useless power consumption . . .

A RECENT survey of a manufacturing concern, made at the request of the president of the organization, disclosed some interesting reasons for high power cost, and doubtless the story may be of interest to the readers of COTTON. In this particular manufacturing plant, there was installed a total of 575 h. p. in motors, ranging from ½ to 40 h. p. capacity. Some of these motors were belted to line shafting and some were geared to the machines that they were required to drive. In addition to the rather large motor installation, there was installed several hundred feet of shafting together with a multiplicity of belts and pulleys.

The complaint had been made that power costs were excessive and the owners were willing that a complete investigation be made to determine, if possible, just why power bills were abnormal.

A complete and systematic survey of the transmission machinery disclosed one of the worst conditions ever found in any industry where power is transmitted by means of belts and shafting.

Approximately 25 per cent of the motors that were belted to main line shafting were operating with the slack side of the belt on the bottom and in addition to this, pulley ratios as high as 6 to 6½ to 1 between driving and driven pulleys were observed. In every case where abnormal pulley ratios obtained it almost invariably happened that shaft centers were very close and that the main drive belt was operated just about as tight as it was possible to make it.

In other cases it was found that belt speeds were from 10 to 20 per cent in excess of good belting practice and frequently it was found that belts that were made entirely too narrow for the imposed load conditions were used. For most part the belting had been in service for a great many years and no effort had been made to keep them soft and pliable, and as a consequence the pulley side of the belt had taken on a hard, glaze surface which was conducive to belt slippage. In very few cases was it found that the arc of contact of the belt on either the driving or driven pulley was anywhere near that called for in good practice.

The condition of the line shafting as a whole was deplorable and in only one department was it found that the shafting was level and in alignment. It was found also that 95 per cent of the shaft couplings installed for connecting sections of shaft together were so out of true as to cause excessive wabbling of the shaft at the point where the halves of couplings joined, and in observing the operation of such couplings it was noted that they described a pronounced eccentric motion. This in turn of course imposed heavy friction loads on adjacent bearings. In every department of the factory with but one exception the shafting was supported from overhead beams and rafters. These beams had settled during the many years in which the building had been in service and as a result entire lengths of shafting ranging anywhere from 75 to 125 feet in length were badly out of level and alignment.

In one department requiring a total of 120 feet of shafting which at one time had been driven by a steam engine and later changed to motor drive using two 25 h. p. motors, it had been decided at the time of installing the motors to saw the shafting in two so as to have two independent drives in this department with a view of permitting only half of the machinery to be run when conditions were such that all of the shafting was not needed during certain hours of the day.

An examination of this run of shafting showed that one section had settled sufficient to bring its center line 2 inches below the center line of the opposite section of shaft and also, these two sections of shafting had separated a distance of 2 inches endways. When the shafting was originally cut in two only the thickness of a hack-saw blade separated the two ends.

Investigation to determine just what had brought about this condition disclosed that it was the result of the settling of the ceiling to which the shafting was attached due to the unequal loading of the floor above that was used for a storage room.

In another department, a 25 h. p. motor furnished the necessary power and was belted to the line shaft. In this case the diameter of the motor pulley was 12 inches, while the diameter of the driven pulley on the line shaft was 72 inches, making a pulley ratio of 6 to 1. To make matters worse, the belt drive was practically vertical and the distance between the motor shaft and line shaft was only 10 feet.

The condition of the motors throughout was deplorable. No effort had been made to keep the windings free from grease and dirt and as a consequence, ventilation through the machines as a whole was practically nil. This condition in combination with excessive friction loads caused the motors for most part to run at temperatures greatly in excess of room temperatures.

A Description of the Sanforizing Process for Pre-Shrinking

By Sanford L. Cluett

Vice-Pres., Cluett, Peabody & Co.

THIS discussion is presented in line with many inquiries as to what Sanforizing is. It describes a machine that will treat a fabric so that its dimensions in warp and filling will be what is desired after the fabric is subjected to laundry washing or other cleaning process.

This discussion is abstracted from a paper prepared by Mr. Cluett for and delivered at the Textile Division of the American Society of Mechanical Engineers meeting in New York City in December and is used with the society's permission . . . .

THE SANFORIZING process and the mechanism for it were designed primarily to treat a fabric so that its dimensions will remain substantially unchanged when the fabric is subjected to a laundry washing or other cleaning process. It is common experience that finished textile fabrics change in length or width when laundered; this change is generally a shrinkage. The principal reasons that shrinkage occurs are as follows:

(a) Practically all textiles are woven under tension, generally in both warp and filling. For obvious reasons textile machinery is designed to operate this way.

(b) In the bleaching and finishing of textiles, from the moment that the webs are sewed together for putting through the rope or open-bleach processes until they are finally bleached and finished, they are stretched every time they are transported from one station to another. This pulling tends to stretch and straighten out the warps and thus narrow the goods. Narrowness is counteracted at one or more stations during the finishing process by pulling the goods out in width through the use of expanders or tenters, or both. As a rule when the material is pulled out or held out in width the warps are still held under tension; thus the pulling out in width also puts tension on the warps as well as on the filling. The result is that most finished woven fabrics are elongated during the finishing process.

(c) When textiles are manufactured into garments, the material may be subjected to more or less stretching in length or in width.

(d) As a result, such fabrics are only awaiting a favorable opportunity to change their dimensions. This opportunity occurs if the finished fabrics are dampened with or immersed in water. The water acts as a lubricant and allows the fibers to readjust themselves. The fibers also swell; and as the yarns are twisted this swelling causes a shortening of the yarns. The combination of swelling and shortening of the yarns, owing to the twist, further causes a shrinkage of the fabric because of a rearrangement of the position of the yarns. The most general cause of garment shrinkage is the laundry wash wheel or other mechanical manipulator of wet garments.

During laundry washing a garment is tumbled about in hot soapy water, generally with a heavy charge of goods, and the yarns are not only further allowed to contract, but they are forced and pounded together by the action of the water and of the other garments in the wheel; there is a fulling effect somewhat similar to that which takes place when wool is washed. Also, caustic and bleaching solutions may be present in the wash wheel and have a further shrinkage effect on the material. It has been observed that woven fabrics nhrunk by water alone will, when subsequently subjected to a full laundry wash, shrink an additional amount varying from ½-inch to the yard to as much as 2 inches to the yard. In fabrics in which the yarns are only partially or altogether unbleached, the fibers are generally water repellent. These fabrics as a rule not only have a high shrinkage factor on washing, but continue to shrink in subsequent laundry treatments until the waxes and gums are entirely eliminated.

Process for Anticipating Shrinkage.

The Sanforizing process is, broadly stated, one for predetermining the superficial dimensions of a fabric and at the same time conserving, and usually improving, its finish. It may be so applied as to shrink or to elongate either the warp or the filling, or both, in any desired combination of dimension change. For example, any one of the following dimensional effects may be attained: (1) Warp shrunk, filling shrunk; (2) Warp shrunk, filling unaffected; (3) Warp shrunk, filling elongated; (4) Warp unaffected, filling shrunk; (5) Warp unaffected, filling elongated; (6) Warp unaffected, filling unaffected; (7) Warp elongated, filling shrunk; (8) Warp elongated, filling unaffected; and (9) Warp elongated, filling elongated.

In the majority of cases preshrinkage is an end in view; and discussion will therefore be confined to that aspect of the process. The procedure consists of the following:

(a) Precisely determining the changes that take place in the longitudinal and transverse dimensions of the fabric when it is subjected to a full laundry wash.

(b) Applying the process to bring about these dimensional changes.

(c) Giving to the fabric by the operation of the process an enhanced commercial finish.

The standard method of determining the changes that take place in the dimensions of a fabric when subjected to a full laundry wash is as follows:

A 20-inch test sample is cut from a web of the cloth to be shrunk, and 18-inches in both warp and filling is marked off accurately on it in indelible ink.

The sample is subjected to normal laundry washing treatment: a 5-minute rinse in either cold or warm water, preferably in water at 140 degrees F.; the water is drawn off; hot water and sufficient soap are added to give a good running suds, which is run in the wheel for 30 minutes and then drawn off; a 10-minute rinse is given in clear water at 140 degrees F., followed by two 5-minute rinses, each time drawing off the previous rinses before adding fresh water; a final 5-minute rinse with water containing about one-eighth of 1 per cent of 56 per cent acetic acid is given. This is done to neutralize thoroughly any small traces of alkali remaining in the goods. After washing, the sample is squeezed by hand without stretching and placed on a screen in a dry room. After drying, the sample is dampened slightly with a spray of water and pressed with a hot iron. During the pressing, care is taken not to rub the cloth, as is customary in hand ironing, but simply to press out and smooth the cloth without stretching.

The changes that take place in the marked 18-inch sample are noted and are recorded on a card for both warp and filling in terms of inches and decimals of an inch per yard of fabric. These changes are called the "PWS" or "potential wash shrinkage" of this particular fabric, elongation being marked with the plus sign and shrinkage with the minus sign. This record serves for setting the Sanforizing machine so that it will change the warp and filling dimensions of the material to be treated by the amount that has been indicated by the sample test.

A similar test piece is cut from the finally treated fabric to determine whether the process has been accurately carried out. It is a rule, not difficult to attain stability of a fabric to within ¼-inch per yard in both warp and filling.

Sanforizing Machines.

The process, in its essentials, can be carried out with various species and types of apparatus. The machinery comprises a combination of types which has, after extensive tests, demonstrated efficient adaptability and adjustability economically to satisfy the requirements and solve the problems presented by a wide range of fabric conditions. The machine and its operation (see Fig. 1) may be briefly described as follows:

The fabric to be treated (marked *W*) is brought to the machine at *A* on a roll or loose on a truck. The material is passed over one or more bars to open it and eliminate wrinkles and is seized at *B* by two grasping (or feeding) rolls that are driven through a variable-speed gearing *C* from a main-line shaft *D-E*, which shaft is driven by a motor *F*. The motor, driving through one shaft, insures synchronization throughout the machine. The material passes from the feeding rolls *B* to a tenter *I-J*, and is fed onto pins or into other gripping devices at *I*, which are mounted on the chain of the tenter, the tenter chain being driven from the main shaft at *K*. If it is desired to shrink the goods in the warp, the variable-speed gear *C* is adjusted to feed the goods to the tenter at a faster rate than that of the tenter chain, with the result that the material, seized by the tenter pins or clamps, is slack and undulated in the direction of the warp. The algebraic differential between the velocity of feed at the feed rolls and the velocity of the tenter chain is the measure of warpwise dimensional alteration to be attained in the tentering machine.

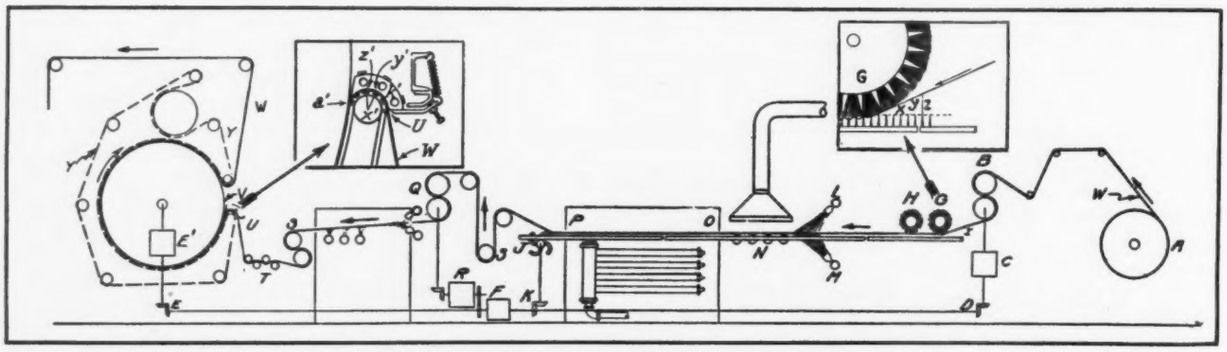


Fig. 1. Diagram of Sanforizing Machine and Its Operation.

The inset at the right in Fig. 1 shows the manner in which material is applied for positive warpwise preshrinkage. *G* is a vertically floating revolvable brush. In starting, the goods are passed under this brush and on the pins close to the selvage edge of the material; the brush of its own weight drops until the goods are stretched taut between the brush *G* and the feed rolls *B*. As the machine is started and the pins move forward in the direction of the arrow, the brush *G* drops to a point where in the small triangle *xyz*, the side *y* is to the side *x* as the velocity of the surface of the feed roll *B* is to the velocity of the tenter chain. As the chain with the material on the pins passes from under the feed brush *G*, the excess material takes the form of ripples somewhere between the points and the bases of the pins. A second vertically fixed brush *H*, rotated by the passing pins, presses the goods down on the pins.

Referring to Fig. 1, the material passes on the tenter past the brush *H* and is moistened from above or from beneath (sometimes both) by water sprays *L* and *M*, which may be operated to deliver any desirable quantity of moisture, and at about this point the tenter chains diverge so that a slight stretch is given to the filling threads. As the material progresses through the tenter the tension thus imposed on the filling

threads tends to straighten them, and to cause a largely increased accentuation in the weave undulations of the warp threads. This action shortens the fabric, as illustrated in Fig. 2, in which *ab* shows a cross-section along one of the warp threads near the middle of the fabric before the filling threads are stretched, for a distance of, say, 2 inches in a straight line. As the filling threads are pulled they tend to become straight, causing the warp threads to assume an accentuated crinkle, as shown between *a'* and *b'*. All of the wave in the fabric between *a* and *b* has now been converted into increased undulations or crinkles in the warp threads. There are the same number of filling threads between *a'* and *b'* as there were originally between *a* and *b*, but the fabric itself is shorter by an amount equal to the excess feed.

The assumption of this new relation by the warp and filling threads is greatly facilitated by the moisture from the spray at *L* and *M*, and may be still further assisted by steamers at *N*, through which just sufficient steam may be supplied to properly diffuse the moisture through the fabric.

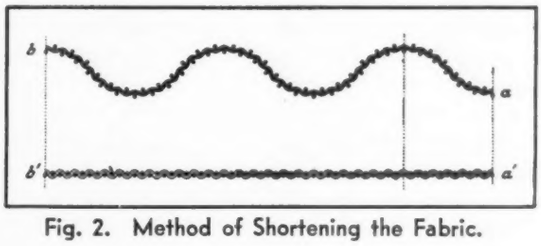


Fig. 2. Method of Shortening the Fabric.

The tenter chains carrying the cloth holders (pins in this case) diverse just sufficiently to cause the fabric to become smooth, and completely take up the excess material fed to the machine at *B*. Forward movement of the chains now carries the fabric into a drying chamber *O-P*, where the moisture is driven out, so that dry fabric emerges from the chamber at *P*. This drying is very rapid as the moisture added by the sprays *L* and *M* and the steamers *N* is only about 10 per cent of the weight of the fabric.

As the fabric emerges from the drying chamber it is doffed from the pins by a high-speed revolving starfish-shaped wheel at *J*. At this point the material has been preshrunk in the warp and stretched in the filling.

The material is carried away from the tenter at *J* by a second pair of grasping rolls *Q*, which are operated through a variable speed drive at *R*, which drive is direct from the main shaft *D-E*. The compensating roll *S* controls the variable-speed drive *R* so that the surface speed of the grasping rolls *Q* just corresponds to the amount of material delivered from the tenter at *J*. No undue tension is imposed on the material between *Q* and *J*.

The material now passes from the grasping or feed rolls *Q* to a modified Palmer drier equipped with a rather thick woolen belt and with other important new adjuncts to be described. Immediately after leaving the feed rolls *Q* a spray is applied, generally to the under side of the fabric, and sometimes steam also with the spray, to soften it and the adhesions that may have occurred in it from the use of sizing. Only sufficient moisture is added to render the material pliable and soft. This softening of the material as a whole causes a decrease in the width of the fabric. If the fabric has been tightly stretched in the tenter, the width shrinkage under the influence of the moisture at *Q* is considerable. The material is drawn away from the feed rolls *Q* at *U*. The speed at which the material is fed into the modified Palmer at *U* is in excess (say about 6 per cent) of the speed of delivery of the material at *Q*. This causes a slight stretching of the material between *Q* and *U* so that it is desirable to place at *S* two rollers mounted on ball bearings which are revolved by the fabric and which tend to keep the filling straight. During the passage of the fabric from *Q* to *S*, the moisture and steam, together with the tension, exert a narrowing effect on the material. To prevent the fabric becoming too narrow, a series of adjustable scrimp bars or expanders is inserted at *T*, which may be so operated as to hold the goods out so that they enter the modified Palmer feed the exact desired width.

At this point *U*, however, the warps have become slightly straightened from their condition of high crinkle when the web was delivered to the point *U*, and it is now not only necessary to dry and finish the material, but also desirable in the case under consideration to put back the preshrinkage in the warp. This is accomplished by that part of the machine shown in the left-hand insert in Fig. 1, as follows:

Referring to Fig. 1, the differential between the surface velocity of the large heated drum of the modified Palmer and the rate of input of fabric at *B* (to the tentering machine) is the measure of the final, or net, warpwise preshrinkage attained. A variable speed drive from the main shaft is provided at *E'*, for adjustment of this differential. If the preshrinkage (warpwise) imposed in and by the tentering machine is to be exactly restored in the modified Palmer, the surface velocity of the modified Palmer will be adjusted to equality with the velocity of the tenter chain. If, however, it is intended to impose, in the modified Palmer, a larger percentage of warpwise shrinkage than that produced in the tentering machine, the velocity of the drum will be by so much the less. The large drum (see inset) drives the belt *p'*, with the result that the surface of the belt in contact with the large drum assumes the same speed as that of the drum. The material *W*, having passed through the adjustable scrimp bars *T*, runs onto the belt *U*, at which point the belt is flexed around a relatively small revolving cylindrical roll *x'*, thereby stretching the surface of the belt at *y'* between the points *U*, *y'*, and *a'*.

It may be assumed for purposes of this exposition that the median longitudinal plane *Z'* of the belt travels at constant velocity equal (or very nearly) to the surface velocity of the large drum. At *y'*, where the belt is abruptly flexed, the speed of the outside surface of the belt is to the mid-section speed of the belt as the radius *y'-x'* is to the radius *z'-x'*.

The material *W* is caused to adhere frictionally to the surface of the belt between *U*, *y'*, and *a'* by the light pressure of an electrically heated iron *k'* which

TABLE 1 CHARACTERISTIC RUNS ON SEVERAL SAMPLES

Material			Before Sanforizing			After Sanforizing		
Name	Count in gray	Color	Width, in.	Shrinkage in in per yd. Warp	Filling	Width, in.	Shrinkage in in. per yd. Warp	Filling
Broadcloth	164 × 84	White	36	2.10	0.25*a*	36½	0.00	0.10*a*
Broadcloth	152 × 80	White	35¾	1.95	0.15	36	0.25*a*	0.15
Broadcloth	136 × 60	Blue	34½	1.80	0.00	35¼	0.12*a*	0.00
Broadcloth	136 × 60	Green	35½	1.80	0.25	35¼	0.12*a*	0.05*a*
Oxford	88 × 40	White	33¾	0.70	0.20	35½	0.20*a*	0.06
Madras	80 × 80	Blue	36	1.65	2.20	35⅛	0.15*a*	0.30
Madras	80 × 80	Tan	36	1.90	2.00	35¼	0.10*a*	0.50
Flannel	---------	Blue	36	1.65	0.95	35¾	0.25*a*	0.15
Army poplin	112 × 60	Olive	35½	0.85	0.65	35¼	0.35*a*	0.00
Chambray	80 × 72	Blue	36½	1.40	1.75	35¼	0.18*a*	0.30*a*
Basket weave	76 × 76	White	33¼	0.90	0.70*a*	34½	0.35*a*	0.40
E. & E. madras	80 × 80	Blue	35½	1.60	1.50	35	0.12*a*	0.00
E. & E. madras	80 × 80	Green	35½	1.60	1.65	35½	0.05*a*	0.15
Woven madras	80 × 80	Blue	35½	2.05	1.55	35	0.05*a*	0.12
Woven madras	80 × 80	Tan	35½	1.85	1.30	35	0.15*a*	0.25
Fancy madras	80 × 80	Blue	35½	2.55	1.05	35¼	0.15	0.05
Fancy madras	80 × 80	Tan	35½	2.60	0.85	35¼	0.00	0.12

a Denotes a gain.

rests on the fabric mostly by its own weight, and which extends across the full width of the machine in short sections of 4 inches or more. The material *W* on coming to the point *a'* is fed at the higher velocity, as stated, to the surface of the hot drum, which is moving at the slightly lower velocity, approximately equal to that of the mid-section *Z'* of the belt, and the material would at this point wrinkle were it not for provision for maintaining fixity of the web to the belt surface up to, at, and through the line where the curvature of the belt reverses; these being, in actual apparatus, the maintained pressure of the irons *k'* and the location of the nip-line between roller *X'* (which is hung so as to press toward the large drum) and the large drum. When the belt reverses its flexure, its supporting surface shortens longitudinally at *a'*, and inasmuch as the material *W* is held practically fixed to the belt surface, it also shortens with the belt surface and travels along between the hot drum and the belt until it emerges at point *c'*.

But inasmuch as the velocity of the surface of the drum and of the belt at *c'* is less than the velocity of the fabric feed at *B* by an amount equal to the shortening that is desired in the fabric, the fabric at *c'* is shortened by exactly this amount; the heat from the hot drum has dried the fabric so that it emerges at *c'*, containing only a small amount of moisture, generally in the form of steam vapor.

The fabric during these operations has become shortened in length and decreased in width. The weaving undulations in the yarn have become accentuated, resulting in a "bead" that gives increased diffusion of reflected light. The drying of the fabric against a polished hot drum has moreover given to the fabric a smoother appearance and better "hand" than it had originally. It will further be noted that this process disturbs to only a small extent the fibers of the yarns, in consequence of which and because of the increase in yarn crinkle a diffused luster is obtained. This is a natural luster which is ordinarily enhanced by the subsequent dampening and ironing that occur during the manufacture of a garment.

There may be or there may develop, of course, situations in which the modified Palmer and its adjuncts will be sufficient to perform the shrinkage operation without the use of the Sanforizing tenter frame. In the Palmer machine, modified and equipped as described, if a belt of increased thickness is employed, an increase in the rate of feed of fabric at *U* will be obtained, while the rate of delivery of the fabric from the modified Palmer will remain unchanged; but whatever the thickness of the Palmer belt and the resulting ratio of input fabric length to output fabric length, that ratio is fixed, and will be appropriate to only one fabric, and will serve only one predetermined purpose, for the inflexibility of this portion of the complete apparatus is contrasted with the inevitable non-uniformity in most carefully woven fabric. However, it has been found, in practice, that for the purpose of handling a large variety of fabrics previously finished in a large variety of ways, the combination of the whole machine, as shown in Fig. 1, has a much greater range, capacity, and adjustability than the section between the second feed rolls *Q* to and including the modified Palmer. The tenter prepares the material for the first operation in connection with the modified Palmer, straightening the filling threads (if previously curved), bringing all of the fabric to the most convenient and constant width, and at the same time shrinking warpwise to almost any degree desired (up to 3½ inches per yard in the present machinery).

To operate individually the apparatus comprising only that from the second feed rolls *Q* to and including the modified Palmer, so that fabrics may be shrunk in warp and filling to a predetermined extent, it is only necessary that the belt of the machine, as illustrated, be sufficiently thick in comparison with the cylindrical roller *x'* to take care of the maximum shrinkage that it may be desired to impose on a fabric. Smaller degrees of shrinkage or shortening of the fabric are obtained merely by the adjustment of the variable-speed drive R controlling the speed of the feed rolls *Q* so that the surface speed of the feed rolls *Q* is in exces of the surface speed of the hot drum by an amount equal to the desired shrinkage. If the speeds were exactly equal, there would be no shortening of the fabric; the latter would simply be stretched between *Q* and *U* an amount equal to the amount that it is shortened between *U*, *a'*, and *c'*.

Table 1 gives the data of characteristic runs of different fabrics in which it will be noted that while the warps are. in all the examples, shortened during the Sanforizing process, the material in the filling dimension has in some cases been lengthened.

As hitherto ascertained, rates of production, varying with the class of goods, on the machine equipment described are as follows: Print cloth, 60 to 90 yards per minute. Broadcloth shirtings, 60 to 80 yards per minute. Duck, 8 ounces, 30 yards per minute. Three men are required to operate the equipment.

CURRENT TOPICS

Talk of the Month.

IT IS difficult to estimate a crisis until after it is passed, but the last month of the year seemed to mark the turning point in a sick cotton industry, if not in the whole economic world. The close relationships between the condition of one industry and all industries—indeed, all business—were never more noticeable than in the last four months of 1930. But if the crisis was passed early in December, that very circumstance was the sign of encouragement for the year upon which we are now embarked. Two significant things in the cotton industry emerge from that situation, pointing to a definitely new condition, from which one hardly can augur anything but improvement, for the industry at home and also abroad.

The General Situation in Textile Markets.

One of these things was the conference of southern mill owners, outside the agreement of manufacturers committed to the plan of the Cotton-Textile Institute for control of output, with a group of buyers. The second thing was the proposal adopted at a joint meeting of employers and employees in the British textile industry to dismantle 10,000,000 spindles and 100,000 looms. These are such measures as come in extremity. They are the climax of a forced adjustment such as has been slowly purging the industry of excess mechanical baggage, notably at first in the elimination of hundreds of thousands of spindles in New England.

It was only a crisis that would bring the whole movement to a head, with the elimination of surplus or obsolete machinery and of excess operation of the retained equipment. Perhaps it will be found that the crisis has served such a purpose as legislative measures, which many have considered as the only means of forcing upon the unwilling minority the regulation necessary to stabilize the industry as a whole. Once all have been brought into line on a reasonable program, they may see the advantage of co-operative control on a permanent basis. At the inception many months ago of the movement for relief of over-production it was realized that only severe pressure, or legislation, would bring the whole industry to time on the proposition.

Certain it is that any group which is shortsighted enough to force competition out of reason again will suffer with the rest and will assume a new risk because of the position taken by the buyers. As stated by George A. Sloan, president of The Cotton-Textile Institute, Inc., in his annual report in October, "History has proved that the assumption that competitors can be beaten out of business by tactics of this sort is unsound. Managements and corporations may become bankrupt, but the mill property still exists and . . . is shortly purchased by new interests who reopen the mills on a much lower basis of capitalization after having purchased them at distress prices . . . The mills whose activities have driven previous managements out of business are then faced with competition far more disagreeable."

Delay, delay, delay, has been the insidious thing about the markets. Yet we may look back at several months as a short period in economic history, whereas waiting Micawber-like for business to turn up makes the months seem like years. At least one thing in the cotton industry the past quarter is encouraging: the fact that raw cotton is no longer the dominating factor in the goods market. The next thing of importance, which the first quarter of 1932 may bring into bold relief, is the general condition of inventories. From various directions has come the word that the inventory position is the strongest for a whole decade. If as someone said long ago the depression would last as long as two pairs of pants, the end must be approaching. When consumers begin to make sizable replacements, inventories of distributors will have to be replaced, immediately. That time cannot be far off.

Besides in cotton manufacturing, a feature of the year-end in textiles generally has been the curtailment program. The unfavorable fall weather was an aggravation to the poor position of trade, notably in wool lines, which resulted otherwise from the world-wide complicated economic situation. In some lines of industry there has been a damaging tendency to produce goods of poor quality in response to demand for merchandise "at a price." Complaint has been heard on this score in the silk trade. On the other hand, the organ of the Tubize-Chatillon Corporation recently stated that more stabilized conditions were developed in the rayon industry in 1931.

WATCHFUL WAITING has been the rule in the cotton industry of New England the past month or more. Through the period of light sales the manufacturers of the district have kept a careful control of output and year-end stocks were understood to have been far from burdensome. If the expected rush of orders now sets in the mills will be in good shape to do a good line of business. There is a distinct demarcation between the conditions in print cloths and fine goods, notwithstanding which the sentiment was expressed in New Bedford in the middle of December that the conference in the South would be likely to prove a constructive force for the general cotton industry.

New England Mill Situation.

By the time this is published the results of that conference will have been determined more or less clearly, one way or the other. But it was an interesting coincidence, at least, that some significant activities were started in New England right after the conference was held. Three well-known units were announced on December 10 for resumption of operations on the following Monday. Presumably that indicated

for some plants at least a securing of new business on a profitable basis, for the policy in this section has been rather generally to stay closed in preference to accepting orders at a loss. The mills in question were the Cabot, at Brunswick, Maine, and the Parker and King Philip, in Fall River, two units of the Berkshire Fine Spinning Associates. These mills mean work for something like 2,400 operatives.

Something of import to the textile industry of New England was a warning sounded by the president of the Philadelphia Textile Manufacturers Association that an increase in the tax rate there would "influence many more of our mills to relocate in other sections of the country where conditions, taxes, etc., are more favorable." Mr. Box, the president, made the statement more pointed by saying that "if we want to see what unfavorable legislation will do to the industry of the city, let us look at the textile localities of Massachusetts—Fall River, New Bedford, Lowell, Fitchburg, Lawrence and Haverhill—where hundreds of mills were forced either to relocate their plants or liquidate."

New England's experience is a lesson and a warning, with an application to all the industry. The silk industry in Paterson and in outlying small centers is suffering from the endeavor of many producers trying to gain some advantage of low costs through local conditions and cheap labor. Meantime, some New England centers are seeking to turn the tables, or at least hold to what they have, by making concessions in taxes and giving abatements on valuations. Which is perhaps a sign of a healthy turn of affairs, after a long period in which communities have ignored the rights and just considerations of mill interests. But at the same time the Paterson experience indicates that manufacturers may carry too far the zeal for securing cheap location and labor cost, which has conduced to poor quality and buyer dissatisfaction, the same as over-production in cotton goods unstabilized the market. It might be concluded that inequitable tax conditions in the long run are a menace to the whole industry, especially if the advantage shifts hither and yon, tempting manufacturers and merely upsetting things.

Among the notable moves to hold fast to a plant has been that of the city government of Peabody, Mass., seeking to retain the Danvers bleachery of the Naumkeag Steam Cotton Company, which was considering the purchase of the Ipswich Mills property at Ipswich. Here was a case where the valuation was increased and yet the owners figured it had already been taxed above its worth. So the company started mill engineers to work on plans for a larger bleachery elsewhere. The company was approached by the city officials of Peabody, but whether assurances of reasonable treatment in the matter of taxes and other co-operation would be given was not known at the time of writing. Along the same or a kindred line, the Boott Mills of Lowell recently received an abatement in valuation of nearly $1,000,000.

Some of the liquidation of mills in New England has been done without a unanimous desire of stock holders and, conversely, a division of opinion has saved other plants. A demand from Walter H. Langshaw that the liquidation of the Grinnell Manufacturing Company should be undertaken was opposed by other directors, in November. In June it had been voted to cease operating for a time and to liquidate the inventory. The stockholders in the second week of December received checks for $10 per share, representing a distribution of proceeds of sales and of cash not needed for carrying on business. The Kilburn Mill stockholders, at a meeting in New Bedford late in November, were said to be about evenly divided on continuing, but at a meeting of directors on December 8 it was voted to dispose of No. 2 plant, with 50,000 spindles. This was referred to a meeting of stockholders called for December 17, at which the directors' vote to dispose of No. 2 was approved.

Freight rates have been giving the cotton industry concern in New England. The National Association of Cotton Manufacturers early in December filed with the Interstate Commerce Commission a complaint on rates on shipments of related articles such as bed linen to western territory from mills in the North and in the South. The manufacturers also asked more properly related rates on cotton piece goods from points in New England to the West and to the South, from New England.

Curtailment Schedule.

THE MEETING recently of a group of converters with print cloth and narrow sheeting manufacturers in South Carolina and contiguous states, seems to have enabled plans to be made which, if enacted, will eventually improve the situation in these groups. The nature of the conditions in these groups is such that no immediate improvement can be expected other than the improvement in confidence in the market situation. The manufacturers, meeting with the converters, have not been, up to this time, committed to a policy of co-operative action. Most of the other mills during the last two years have made rather strenuous efforts to improve market conditions but this minority has been unable to see the wisdom of such action until recently.

About a year ago the converters became interested in the demoralized condition of the industry, and the Textile Converters' Association passed a resolution, urging curtailment, even recommending a total discontinuance of night work and suggesting that preference in purchases might be given to such mills as were making an effort to correct the evils then obtaining.

Spasmodic curtailment has never been regarded as anything more than an emergency measure. The Greenville meeting rather intensified the necessity for adopting a permanent policy, the enactment of which would give a rather steady operating time which would not be marred by the unusual curtailment programs.

The committee appointed to make recommendations on such a plan reported a policy of curtailing Christmas week and one week in each month thereafter as long as conditions may warrant. Several of the large operators have already concurred in this policy, and say that they are willing to abide by it, provided a majority of the mills making these constructions adopt it also.

The general feeling, at this time, is that it will be adopted and that the group will work in a better co-operative spirit than it has at any time since its formation. The welfare of the worker, the manufacturer and the public demands that some system of operation shall be enacted that will give confidence and remove the chaotic influences now obtaining.

Changes in Cotton Contract.

RECENTLY, the New Orleans Cotton Exchange passed a measure establishing full premium on 15/16-inch and 1-inch staple to be delivered on contract, to become effective one year from date. This action is considered to be detrimental to cotton manufacturing interests, according to a statement recently issued by Cason J. Callaway, president of the American Cotton Manufacturers Association.

The same measure is being sponsored on the New York Cotton Exchange and the passage of such a measure would be very costly and unfair to cotton manufacturers. It would lower the value of the present contract and increase the basis on 15/16-inch, 1-inch and better cotton. It would raise the basis above a just level, by reason of the conditions governing the establishment of staple values on cotton to be delivered on contract. Staple values referred to are determined by taking the average basis on 15/16-inch and/or 1-inch on the spot markets designated by the Secretary of Agriculture. Values on any spot market are based on the average quality of the cotton received on that market.

When a bale of cotton is certified, nothing is taken into consideration on staple but the length, no matter how soft, and wasty it is, if it pulls 15/16-inch or 1-inch it can be delivered on contract on the same value as the better quality cottons on which such values were established. Such a fictitious value is far from being fair. Values on different spot markets vary greatly also on account of character. Should cotton be selling on some spot markets much cheaper than the average of the spot markets designated to determinute staple values, by reason of inferior quality, this cotton can be delivered on contract at a price that is much too high based on comparative values.

Then to be able to tender irrigated cotton in 15/16-inch and 1-inch at a full premium value would be very unfair, on account of the value of irrigated cotton compared with cotton on which contract values are established. There is also the possibility of a manipulation of the staple basis on the designated spot markets which would be very disastrous with full premiums.

The contract, as it now stands, allowing 60 per cent of premium on 15/16-inch and 1-inch cotton helps to offset to some degree the disadvantage to the buyer referred to.

The present contract seems already too one-sided in favor of the seller. The seller can deliver the grade and staple he desires; he can also deliver it when and where he prefers. It is true such information is put on the notice, but often that is too late to offset the handicap. It is also a fact that the seller is going to deliver to the buyer the least desirable cotton and at the least desirable point and at the most undesirable time. This is the privilege which he is entitled to according to the present contract, but why make the contract more one-sided and unfair by establishing full premium on 15/16-inch and 1-inch cotton? Any such action by the New York Cotton Exchange should be vigorously protested by every manufacturer.

Marketing Study by Textile Foundation.

COMMENCEMENT of a study dealing with the marketing of cotton goods was announced in December by the Textile Foundation. This is the second of a series of distribution studies in the field of textiles authorized by the Foundation in recognition of the important role distribution plays in the modern business drama. That every advantage and facility may be available, an advisory committee has been formed consisting of the following members:

Walter S. Brewster, Chairman	The Association of Cotton Textile Merchants of New York
Harry L. Bailey	The Cotton Textile Institute, Inc.
Fessenden S. Blanchard	Nat'l Ass'n of Cotton Manufacturers
G. Edward Buxton	The Cotton-Textile Institute, Inc.
George S. Harris	American Cotton Manufacturers Ass'n
George Hussey	Textile Brokers Association
Henry G. F. Lauten	Textile Converters' Association
Leavelle McCampbell	The Ass'n of Cotton Textile Merchants of New York
W. L. Pierce	Nat'l Ass'n of Finishers of Cotton Fabrics
Robert T. Stevens	The Ass'n of Cotton Textile Merchants of New York
William E. Winchester	The Ass'n of Cotton Textile Merchants of New York

This advisory committee is an enlargement of the original Committee on Distribution of The Association of Cotton Textile Merchants of New York which at the request of the Foundation began in the spring of 1931 a preliminary survey of problems of textile distribution. The promise of the full co-operation of all interests insures a report of great value and wide application.

The study will be conducted by the Harvard University Graduate School of Business Administration, under the direction of Dr. Melvin T. Copeland, professor of marketing.

The North Carolina Association Meeting.

AT THE Fall meeting of the Cotton Manufacturers Association of North Carolina at Pinehurst in December, the Constitution and By-laws were revised and the association was incorporated. Like many of the state associations the North Carolina Association has been unincorporated and operating upon a more or less unwritten constitution, which at times was advantageous and at other times caused doubt to arise in the minds of the members as to what action should be taken upon certain measures by the Association.

This has all been clarified and the association is now proposing to give a great deal of attention to the study of production and consumption of cotton goods, freight rates, legislation, particularly tax legislation, and other subjects of particular interest to the textile industry in the state.

Perhaps the outstanding feature of the meeting was the address of Dr. Frank Graham, President of

the University of North Carolina. This address was anticipated with a great deal of interest because of the rather liberal attitude that Dr. Graham has assumed during the last few years, and further accentuated by the fact that this was his first public appearance before a group of manufacturers.

Dr. Graham very frankly reiterated his position in reference to shorter working hours, elimination of women and minors from night work, freedom of speech and publication and the right of the worker to organize. In support of his positions on these various subjects, he gave a rather philosophical and historical background as his reasons, indicating rather conclusively that he would be untrue to himself if he should state his position otherwise. He paid a very distinct compliment to the effort of The Cotton-Textile Institute in its efforts to shorten hours, adjust production to demand and to eliminate women and minors from night work. There was a divided opinion as to the correctness of his thinking in all details. However, it is safe to say that quite a few of the manufacturers present received his address with applause.

The Tyranny of Taxes.

"THE 1931 State legislative record reveals a bewildering evasion of the sense of responsibility on the part of our legislative agencies to such acute public needs as sensible economy. It is obvious that emotionalism is in the saddle in many departments of political government and is riding wildly our public officers into a veritable wilderness of public expenditures which must inevitably lead to crushing new burdens of state and local taxation," is a paragraph taken from the 1931 Survey of State Legislation issued recently by the National Association of Manufacturers.

This report is correct in feeling that during this time of economic and industrial distress when the valuations of every commodity are pointed downward, when industry and business is struggling to save itself, the legislative factors of government should cooperate rather than employ a misguided mushroom idea of improving the situation by increasing and enacting new tax burdens for the purpose of being expended in public works.

"The year 1931 undoubtedly will go down in history as an era of the most far-reaching efforts and gestures of state paternalism through executive and legislative action. In the name of 'unemployment relief' and 'agricultural relief' state legislative actions involving many hundreds of millions of dolars of public revenues were authorized to be raised and expended by political agencies of government during the next year or two."

To try to list the various shiftings of tax burdens, the various increases of tax burdens, the new sources of revenue found would be too detailed other than to indicate that the average law maker seems to feel duty-bound to ever increase these burdens and to ever seek for new sources of revenue rather than to react to this giant octopus that is crushing the welfare of the states and the nation, by seeking to curb its growth in reducing expenses and installing efficiencies.

What the Southern Mills are Doing

CONSOLIDATION of the Eureka Cotton Mills, Chester, S. C., and the Fort Mill (S. C.) Mfg. Co., with the Lancaster Cotton Mills Company, Lancaster, S. C., was approved in December by stockholders of the latter company. All of the companies involved are controlled by Captain Elliott Springs. The merger includes increasing the capital stock of the Lancaster Cotton Mills Company from $2,500,000 to $4,500,000 to permit acquisition of the capital stock of the other companies. It is understood that the stock of the merged corporation will be made available to the public. No change in operation or personnel was anticipated in effecting the merger, it is understood.

Johnston Mills Company, Charlotte, N. C., has purchased the property of the former Watts Spinning Co., Stony Point, N. C., manufacturers of fine yarns. The name has been changed to Worth Spinning Co., and the mill placed in operation.

A $50,000 addition to the sheet finishing department, 150 x 200 feet, is being erected at the Cannon Mills, Kannapolis, N. C. It is understood that when finished this addition will house finishing operations.

Some bids have been awarded in the construction of an addition to the Charlottesville (Va.) Woolen Mills. The new building will be four stories and basement, brick and steel construction; it will replace several smaller obsolete buildings whose arrangement did not permit a good lay-out of modern equipment. Machinery from the old buildings will be transferred to the new building. The following contracts have been let: Allen J. Saville, Inc., construction of building; R. H. Bouligny, Inc., light and power wiring; and Grinnell Co., Inc., heating and sprinkler equipment. Lockwood Greene Engineers, New York, are the engineers who prepared the plans and who will supervise the construction.

Tupelo Cotton Mills, Tupelo, Miss., have purchased 29 spinning frames from the plant of the Pine Bluff (Ark.) Textile Mill, and arranged with O. S. Shelton to dismantle these frames and erect them at Tupelo.

Contracts were given to the Dixie Spindle & Flyer Co., Charlotte, for overhauling spinning machinery at the plant of the Monarch Mills, Lockhart, S. C.; and for similar work at Pacific Mills, Lyman, S. C. This concern also overhauled the fly frames of the Consolidated Textile Corp., Lynchburg, Va., with the Guillet overhauling system.

Order has been placed with Firth-Smith Company to complete the equipment of bunchless automatic cleaners on spinning, twisting, speeders and winders at the plants of the Avondale Mills in Alexander City, Pell City, and Sylacauga, Ala. This equipment was also installed over new spinning equipment at the Manchester Cotton Mills, Manchester, Ga.; and over high speed warping creels at the Walton Cotton Mills, Monroe, Ga.; also over spinning at the Greenwood Cotton Mills, Greenwood, S. C.

An Economy cotton stacker has been installed at the Eagle & Phenix Mills, Columbus, Ga., by the Economy Engineering Co., of Chicago; and similar equipment has been placed at the Willingham Cotton Mills, Macon, Ga.

National Dixie Mills, Inc., Newnan, Ga., are planning an increase in production, according to report.

A number of Fletcher redraw frames have been purchased by the United Throwing Co., Burlington, N. C.

Contract for the construction of an addition to the Southern Weaving Company plant, Greenville, S. C., to be used as a bleachery and dyehouse, has been awarded to Gallivan Construction Company, Greenville. J. E. Sirrine & Co. are the engineers.

The property and plant of the Spartanburg unit of the Yarns Corporation of America, Spartanburg, S. C., has been sold to Horace L. Bomar, Spartanburg attorney.

The liquidation of all of the equipment in the plant of the Savona Mfg. Co., Charlotte, N. C., has been placed in the hands of H. M. McCord, 100 East 42nd St., New York City, with Southern office at 1400 Woodside Building, Greenville, S. C. The McCord organization is also handling the liquidation of the Birge Company, Bristol, Conn.

Comment on the Cotton Market

New Orleans, December 14th, 1931.

EXCEPT for temporary bulges, the cotton market remained on the down grade during the past month. Depressing influences were the continued weakness in Wall Street, an unsuccessful effort to finance 500,000 bales for shipment to France, some curtailment by American mills, a falling off in the demand for spots in the South, disappointment in British Board of Trade returns for November, and in the census report as to domestic consumption for November, as well as in the monthly domestic textile report, and the absence of any trade or speculative demand of consequence. The decline, however, was gradual, as there were some developments that tended to discourage bearish operations.

Considering this year's large world's carry-over of American and this year's large indicated American crop, the movement to market was rather light, there was expansion in exports, the price was comparatively very low, and there are prospects for a drastic reduction in the cotton acreage next spring. Compared with one month ago, Middling cotton in New Orleans today is 5.99 versus 6.35.

Although a little larger than as of November 1st, the government's annual cotton crop estimate, as of December 1st, released December 8th, was smaller than the average of private estimates, and census ginning returns to December 1st were less than were generally looked for.

SEASON'S WORLD'S INDICATED SUPPLY OF AMERICAN LINT COTTON

Bales—	This season	Last season
World's carry-over, August 1st (Hester)	8,710,000	5,939,000
Indicated crop, government, etc., as of Dec. 1st	16,918,000	13,932,000 (final)
Season's Indicated supply, about	25,628,000	19,871,000
World's consumption of American lint (Hester)	?	11,045,000

It is reported, however, that about 6,600,000 bales are to be held off the market until July 31st, 1932, and in that case the available for this season would be less than last season's, or about 19,028,000 against 19,871,000. While it is true that the reported to be held off the market will be included in the world's carry-over at the end of this season, the withholding of so much cotton this season may make offerings rather limited, except, perhaps, on some advance of importance. At any rate, the expected very large surplus at the end of this season, probably very much larger than the carry-over from last season, may be offset, as to the excess in the surplus of 1932 over 1931, by the expected reduction in acreage next spring, which is likely to be drastic and probably furnish a very much smaller crop next year.

According to the New York Cotton Exchange Service, the world's consumption of American lint cotton during October was 1,027,000 bales compared with 961,000 in October last year; for three months 2,927,000 against 2,626,000.

ASSOCIATION OF COTTON TEXTILE MERCHANTS OF NEW YORK NOVEMBER STATISTICS

Yards, Year—	Nov., 4 Weeks 1931	Oct., 4 Weeks 1931	Nov., 4 Weeks 1930
Production	231,446,000	227,116,000	206,633,000
Sales	224,207,000	333,679,000	183,067,000
Shipments	213,889,000	216,207,000	200,661,000
Stocks	273,390,000	255,833,000	356,861,000
Unfilled orders	354,957,000	344,639,000	333,251,000
Nov. sales of production	96.9%	146.9%	88.6%
Nov. shipments of production	92.4%	95.2%	97.1%
Stocks at end of month	Inc. 6.9%	Inc. 4.5%	Inc. 1.7%
Unfilled orders at end of month	Inc. 3.0%	Inc. 51.7%	Dec. 5.0%

CENSUS REPORT

United States— Bales—	This season	Last season
November consumption lint	428,870	415,315
November consumption linters	52,687	54,173
November consumption, including linters	481,557	469,488
Consumption, 4 months, lint	1,780,418	1,604,615
Consumption, 4 months, linters	238,525	241,751
Consumption, 4 months, including linters	2,018,943	1,846,366
Mill stocks, November 30th	1,441,165	1,564,011
Stocks in pub. stg. & whs., November 30th	10,695,797	8,397,549
Stocks in mills, pub. stg. & whs., November 30th	12,136,962	9,961,560
Active spindles during November	24,860,684	25,796,748

CENSUS REPORT

Bales—	This season	Last season
Ginned to December 1st	15,023,451	12,837,099
Ginned to November 14th	14,210,301	11,962,827
Ginned November 14 to Dec. 1	813,150	874,272

During the latter part of November the New York Cotton Exchange Service was quoted as saying: "World's consumption of American lint cotton during October was 1,027,000 bales compared with 961,000 in October last year; for three months 2,927,000 against 2,626,000."

The same authority was quoted today as stating: "Domestic consumption is up 10.8 percent so far this season. Total stock in United States at end of November was about 18,346,000 bales including the unpicked portion of the crop, against 13,500,000 last year and 11,500,000 year before last. Exports running ahead of last year due to heavy takings by the Orient. Small into sight movement reflects holding of growers. Egyptian and India crop estimates reduced."

AMERICAN COTTON (HESTER)

To December 11th. Bales—	This season	Last season
In sight (marketed)	9,829,001	10,432,814
Exports from U. S., inc. Canada	3,390,782	3,474,394
Spinners' takings, world	5,722,000	5,040,000
World's visible today	9,081,648	8,480,751
Middling in N. O. Dec. 11th	6.08	9.45

Compared with last season, the world's visible supply of other kinds December 11th was 1,829,000 bales versus 1,901,000, and of all kinds 10,910,648 against 10,381,751.

BRITISH BOARD OF TRADE REPORT FOR NOVEMBER

Year—	1931	1930	1929
Exports of yarn, pounds	12,000,000	11,000,000	12,000,000
Exports of cloth, yards	126,000,000	130,000,000	284,000,000

EXPORTS FROM THE UNITED STATES, INCLUDING CANADA, TO DECEMBER 11TH. DIVIDED

Bales—	This season	Last season
To Japan	792,785	397,359
To China	545,540	185,309
To other foreign countries	2,052,457	2,891,726
Total	3,390,782	3,474,394

SPINNERS' TAKINGS OF AMERICAN COTTON TO DECEMBER 11TH.

Bales—	This season	Last season
North and Canada	564,000	622,000
South	2,130,000	2,073,000
Foreign	3,028,000	2,345,000
World	5,722,000	5,040,000

Total average rainfall in Texas during November was 2.20 inches versus 2.72 last year, 3.10 in 1929 and normal of 2.32.

While sales of raw cotton in the South the past month were of smaller proportions than for the previous month, they were larger than for corresponding month last season. Compared with last year, sales during the week ending December 11th at reporting southern markets were 162,723 bales versus 109,412.

Because of exports to the Orient being so large already, there is the possibility of shipments to the Far East falling off in the future, but because of the light exports to Europe thus far, there is the possibility of shipments to England and the Continent picking up or running larger than they were after this time last season.

As regards spinners' takings of American, which are well ahead of this time last season, there is the possibility that they will continue favorable compared with takings after this time last year, which would likely furnish some indication as to the trend of consumption of American cotton by the world as the season grows older.

Henceforth the passing of each day will bring closer the period for plowing and preparing for the next cotton crop, seeding of which will take place in the spring. Because of the comparatively very low price of cotton and prospects for a record world's carry-over of American cotton at the close of next July by a big margin, there is the possibility of a drastic reduction in the cotton acreage next year.

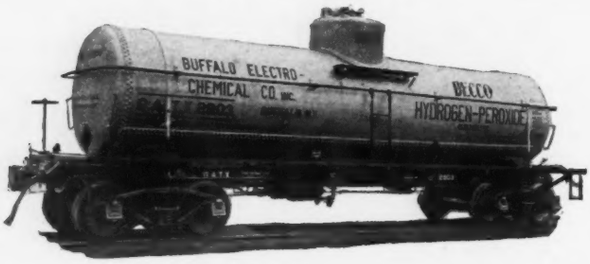
The recent suspension of the gold standard by Japan is likely to redound to the benefit of Japanese trade, and may have some unfavorable effect on Manchester trade with the Far East, although England appears to have the advantage to some extent since there is reported a boycott on Japanese goods in China.

New Textile Equipment and Publications

Hydrogen Peroxide Now Shipped in Tank Cars.

Buffalo Electro Chemical Company. Inc., Buffalo, N. Y., recently announced the completion of plans for shipping hydrogen peroxide in a special aluminum tank car built for them by the General American Tank Car Corporation. The Buffalo company is the first to conceive and create this type of vehicle, and additional cars are now under way.

The company points out that demand is the occasion and economy the result of the development of this method of shipping. Glass carboys protected in the usual manner by being packed in excelsior or straw in a strong wooden carrying case, it is explained, weigh approximately two-thirds of the weight of the material shipped. The new tank car, now in regular use, has a capacity of 8,000 gallons, or the equivalent of 80,000 pounds of the shipper's hydrogen peroxide. For a similar shipment of hydrogen peroxide in carboys, the company points out, nearly three carloads of containers would be required.



For shipping hydrogen peroxide.

In connection with the use of hydrogen peroxide as a bleaching agent, the company's announcement continues, "since the adoption of the electrolytic method for manufacturing hydrogen peroxide in this country not only has the production cost of hydrogen peroxide been lowered, but the expense in shipping was likewise affected because by the electrolytic method hydrogen peroxide solutions can be gained directly from the still in concentrations of 100 volume and over." In addition to the saving thus affected in shipping expense, it is pointed out, this new shipping innovation is an additional reflection on transportation costs.

The company states that hydrogen peroxide is rapidly gaining place as a bleaching agent for bleaching all sorts of textiles. "As a matter of illustration," the company says, "it might be cited that large cotton manufacturers who found it not economical to use hydrogen peroxide several years ago are now making preparation to use it exclusively." In addition to its use as a bleaching agent used in textile industries, hydrogen peroxide is also used for oxidation purposes of all kinds, it is explained; it is further used in the bleaching of straw, fur, wool, silk, rayon, etc. The announcement points out that the development of the tank car method of shipping "was brought about only by intensive, extensive and careful research as a great many obstacles had to be overcome. Research on shipping and on improved bleaching methods, as well as economies in manufacturing, are constantly being carried on by the Buffalo Electro-Chemical Company, who operate a most modern plant in Buffalo under the Pietzdch and Adolph process."

:: :: ::

New Thermostatic Radiator Valve.

Powers Regulator Company, 2720 Greenview Avenue, Chicago, Ill., have announced the addition to their line of temperature regulators of the Powers thermostatic radiator valve. This is a self-operating regulator, employing the same principle of operation used in Powers regulators for years, and is designed to control the temperature of rooms heated by direct, indirect or concealed radiation of vapor or vacuum heating systems. It is emphasized that this does not operate on a radiator temperature differential—that is, it is not a control influenced principally by the radiant heat from the radiator—but that it has a sensitive thermostat which can be located outside of the radiant heat zone of the radiator, and where it will be influenced by the actual room temperature.

The temperature regulator consists of a diaphragm operated valve connected by armored flexible tubing to a thermostat obtainable in two styles, one enclosed in a thermostat case with thermometer for wall mounting, and the other a tubular-shaped thermostat of the bulb type for use with concealed radiation, unit heaters, and wall type radiators. It is claimed that accurate temperature control is secured due to the larger sensitive surface of the thermostat, which is influenced by the room temperature, and the greater area of diaphragm bellows used to open and close the valve, making the action of the regulator more powerful and rendering it more immune to pressure changes in the steam supply line.

:: :: ::

Information on Gates V-Drives.

The November issue of *The Industrial News*, published by Gates Rubber Company, Denver, Col., gives helpful engineering data and information concerning the Gates V-drives, Vulco ropes, and V-flat drives manufactured by this company. A special section is devoted to a discussion of speed-up drives. A list of Gates representatives in principal trade centers is included.

Another section discusses Gates textile supplies, which are made of cotton fabric and a special rubber compound. These include lug strap holders, made of a plied-up 14-ounce chafer fabric cushioned and bonded by specially compounded rubber; box pickers of the general sliding type operating on loose pickers and with reversible ends, no rivets being used; Draper pickers, the body of which is a laminated block of 14-ounce chafer fabric cushioned and bonded by special shock resisting rubber, no rivets being used; and tail pickers, made of forty layers of 14-ounce chafer fabric, cushioned and bonded with a special hard rubber and molded by special forms under high pressure.

:: :: ::

"The A B C of Long Draft Spinning".

This is the title of a useful and informative booklet which has been prepared by Whitin Machine Works, Whitinsville, Mass. The introduction, by E. Kent Swift, adequately describes the purpose of the booklet as follows:

"Long draft spinning, or what would be more properly called better drafting, is a matter in which every spinning mill is interested today. The customary three-roll system, which held under control only the longer fibers, and which has been used for a great many years in the spinning of cotton

To Prospective Users of
One Process Picking

● Your interest in One Process Picking comes from a desire to attain **Better Laps . . . Lower Operating Cost . . . Greater Production.** These objectives are achieved in a definite way, as follows:

Consider these Facts It Will Pay You!

BETTER LAPS

a. Variation of yard-to-yard weights reduced to ¾ oz. or less.

b. Definite improvement in blending, through use of the Intermediate Feeder.

c. Decided improvements in cleaning and opening through the selection of the proper beaters, operated at correct speeds and settings — details which vary in nearly every mill.

d. Uniform lap texture, resulting in freedom from thick and thin places, lumps and holes, straight and even selvages — all secured by improvements in sheeting of the stock. These improvements result through the improved design of the machine, and the elimination of eddy currents and back pressure in the air passages.

LOWER OPERATING COST

Labor Saving

a. Through full use of automatic control and complete synchronization of all machines in the range.

b. Application of improved devices, perfected in recent years.

1. Automatic Rack Release
2. Positive and Instantaneous Knock-Off
3. High Pressure Lubrication
4. The Overflow Return Pipe
5. The Electric Control

c. Elimination of human element in weight regulation. In many cases weighing two laps in ten hours is entirely sufficient.

Saving in Power

a. Accurately balanced beaters and fans, together with a liberal use of high grade anti-friction bearings, effect positive reductions in power.

b. Individual motor drive, with all useless belts and counters eliminated, is an additional saving.

c. Frequently it is possible to eliminate several units of older equipment on account of the increased production of properly designed One Process Pickers.

INCREASED PRODUCTION

a. Scientifically designed units, accurately machined, give sensitive eveners which practically eliminate production losses on account of rejected laps.

b. When the opener equipment is adequate it is frequently possible to reduce the blows per inch and thus increase the gross production. We do not recommend production at the expense of quality.

c. Freedom from breakdowns and replacements. Every part thoroughly tested in laboratory and mill before commercial production is started. You run no risk of paying for experiments and experience, or incurring the expense incidental to the wasting of power, cotton and labor, as happens to a serious extent when pioneering into a new field. Saco-Lowell One Process Pickers eliminate all experiments in your mill. You get a finished machine, perfect in its functions, and tried and found adequate in hundreds of mills.

● **Before spending money in changes in your picker room, it will pay you to determine if the equipment you select will achieve the objectives you desire.**

● **Will your equipment be as modern, as efficient, or as economical to operate as that of your competitor? Is it backed by an organization which has never failed to meet a guarantee? Will you be entirely satisfied with its performance? If it fails in any of these particulars . . . You Need**

Saco-Lowell One Process Picking

SACO-LOWELL SHOPS

147 MILK STREET, BOSTON, MASS. Charlotte, N. C. Spartanburg, S. C. Atlanta, Ga.

yarns, is giving way to varying arrangements. These aim to control all fibers, both long and short, producing a better, evener and stronger yarn.

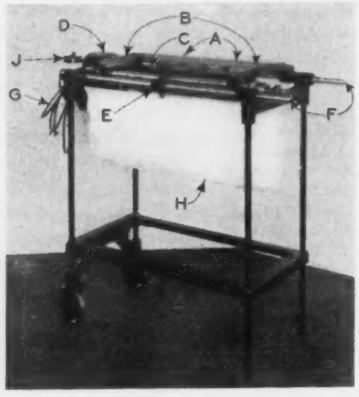
"The Whitin Machine Works' business is to produce spinning frames which will adequately answer the demands of the mill under all varying conditions of the manufacture of yarns. This booklet describes the principal systems of long drafting arrangements which are now established in this country, with an attempt to define to some extent their scope of usefulness and their limitations."

The booklet serves this purpose adequately. Starting with a brief discussion of preparing cotton for spinning, it gives next a clear and elementary description of the purpose and function of drafting and spinning, and then discusses the various forms of long drafting, including break drafting, slip roll drafting, four roll drafting, single belt and Casablancas systems.

:: :: ::

Clearer Board Napping Machine.

In a recent issue of *Termaco Times*, the Terrell Machine Co., Charlotte, N. C., described the clearer board napping machine which they manufacture as a means of keeping clearer board felts in good condition, and which has recently been improved. The device cleans the boards and renews the nap on the felt. The machine is portable, compactly built, and can be conveniently handled in the alleys between spinning frames, it is pointed out. It measures 36 inches in length, 15 inches in



For napping clearers.

width, and 34 inches in height, and its net weight is 115 pounds.

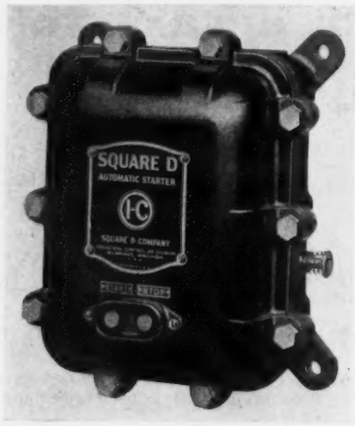
The operation of the machine will be understood by reference to the illustration, as follows: Clearer board *A* is supported on each end by guides *B*. A napping roll *C* is located directly beneath these guides and is driven by a motor *D*. One end of the napping roll is directly connected to the motor, while the other end is supported by a ball bearing. Guides *B* may be raised or lowered by adjusting lever *E*, to secure the desired contact between the napping cylinder and the clearer board. Lint and dust are collected in bag *H*, which is arranged for quick removal. A switch *J* is mounted on one corner of the machine, and an extension cord G, 15 feet long with standard attachment plug, is furnished as part of the equipment. Handles *F* are provided for lifting one end of the machine so that it may be rolled along on the two wheels under the opposite end.

The motor is 1/10th-hp. 110 volts, single phase, 60 cycle; though motors of different voltage can be supplied.

:: :: ::

Explosion Proof Starters and Control Station.

Square D Company, Milwaukee, Wis., announce that the Class 8532, Types AR-1 and BR-1 explosion proof starters manufactured by the industrial controller division have been approved by the Underwriters' Laboratory for use



Explosion Proof Starter.

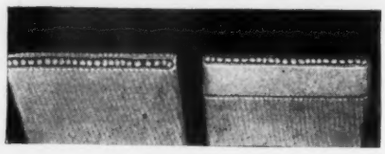
in Class 1, Group D locations which includes several hazardous atmospheres. Type AR-1 has a "start-stop" push button in the cover while Type BR-1 is designed for remote control. The starter mechanism consists of a ruggedly constructed three pole magnetic contactor and thermal overload relays mounted on a porcelain base. An explosion proof cast iron enclosure surrounds the starter mechanism. The starters provide low voltage protection and release, also time limit overload protection to A. C. single and polyphase across-the-line motors.

Also, the industrial controller division's Class 9001 Type BR-11 explosion proof control station has been approved for the same locations. The station is of the three wire, momentary contact type provided with one normally open and one normally closed contact inclosed in a cast iron housing. It is so constructed that it will withstand an internal explosion without injury to the enclosure and without transmitting flames to surrounding gases.

:: :: ::

New Condor Cone Belt.

Engineers of The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J., have recently announced an improved construction design for cone belts. The new construction is known as Condor Whipcord. In detail it consists of continuously-wound,



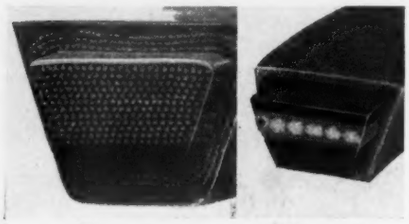
New Condor whipcord cone belt.

strong whipcords, each separated from the other and imbedded in rubber. The running surface is flexible closely-woven duck treated with a special red friction rubber. It is pointed out that confirmation to the cone is natural and positive; that internal friction between adjacent cords in the belt is impossible; that traction between belt and cones is uniform; and that a nice balance between lateral stiffness and flexibility has been obtained by this construction. It is stated that the belt runs smoothly, and shifts easily, and has an extended life.

:: :: ::

New Condor V-Belt.

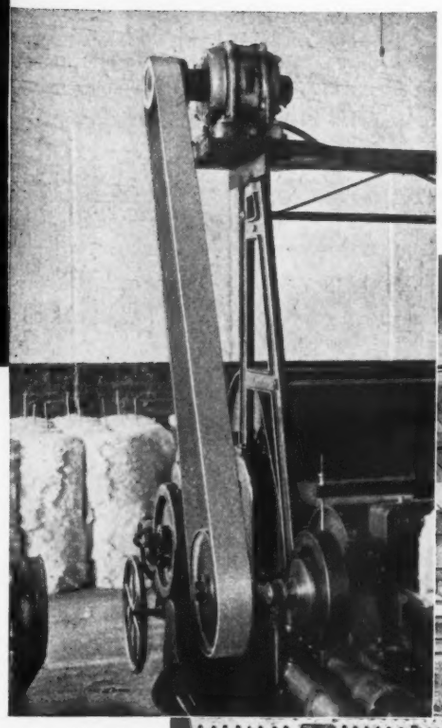
A V-belt with no inelastic stretch has been announced by engineers of The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J. In light-duty, high-speed sizes, a strong flexible Whipcord construction



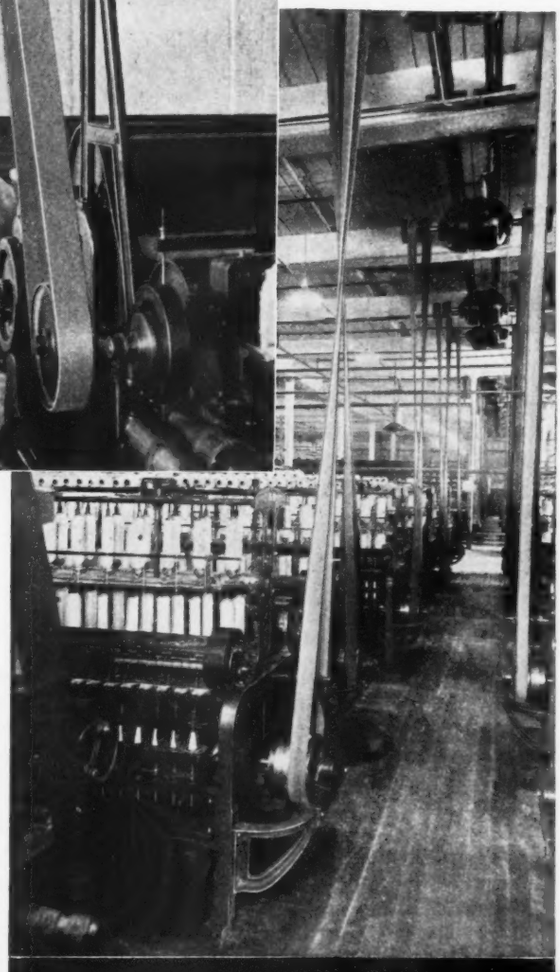
Plycord Whipcord

is used, and for heavy-duty service, a more rugged design known as Plycord is employed. Condor Whipcord, in detail, consists of one layer of continuously wound cords imbedded between two layers of tie-gum. The balance of the belt is filled out with the correct proportions of extensible and compressible rubber with a closely-woven rubberized duck cover to complete the structure. Condor Plycord is designed to do heavy-duty work and is made up of continuously wound plies of cord

Something we Learned for Ourselves that YOU may PROFIT by



TUNE IN:
Goodyear invites you to hear John Philip Sousa and his Band . . . Arthur Pryor and his Band . . . Goodyear Quartet and Concert-Dance Orchestra — every Wednesday and Saturday night, over N.B.C. Red Network, WEAF and Associated Stations



AS YOU probably know, Goodyear owns and operates several large fabric mills. What Goodyear knows about belts for textile drives you can set down to actual experience.

For example, Goodyear knows that certain machines require belting of absolutely minimum stretch. Others put a premium on belt resistance to fraying under shifting, or ripping and splitting along a central seam.

So Goodyear has built the belts that fulfill these requirements:

Goodyear COMPASS (Cord) Endless Belt — the most nearly stretchless transmission belt made. Developed for individual motor drives in Vertical Openers, Pickers, Lappers and Twisters. Truly endless, made of cords laid side by side, bound with Goodyear rubber, and enclosed in a fabric envelope that is double on the pulley side. The cord carries the tensions; the cover takes the wear.

Goodyear THOR Belt, seamless*, is a textile belt with protected edges — no central seam — guarded with a covering envelope. It is a standard specification now for long wear and low replacement costs on Cards, Frames, Slubbers, Spoolers, Looms, Slashers and Breakers.

Let the G. T. M. — Goodyear Technical Man — tell you about these belts and the money they save. Ask him to call — a word to Goodyear, Akron, Ohio, or Los Angeles, California, will bring him.

** Goodyear* THOR *Belting, seamless, is made in widths up to and including 16" —* THOR *quality of special construction is available for larger sizes.*

TEXTILE BELTING

THE GREATEST NAME IN RUBBER

GOODYEAR

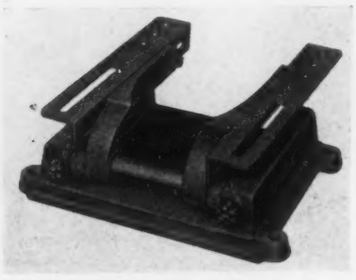
with one layer of tie-gum between. When built up to the right thickness and correct number of plies, it is cut to the correct angle of the belt. The balance of the construction is similar to Whipcord. Among the points of balance claimed for the new belt are: wide margin of strength; no inelastic stretch; uniform flexibility; no structural breakdown; smooth running; maximum traction; slow side wear; and stiff lateral reinforcement.

:: :: ::

New Rockwood Base Adaptable to All Motors.

Rockwood Manufacturing Co., Indianapolis, Ind., have announced that the Rockwood short center drive has a new base equipped with adjustable arms, on which the motor is mounted. The drives are now adaptable to all types of motors, old or new, 25, 50, or 60 cycles, single or polyphase, alternating or direct current.

The company explains that these new bases permit mounting the motor



New Adjustable Motor Base.

so that any part of the motor rating can apply to the driven machine without waste of current or power. If only a part of the motor rating is being utilized, it is pointed out, the weight of the motor may be adjusted to give the tension on the belt and bearings required by the load. The announcement continues:

"Each drive is completely engineered so that not only can the weight of the motor be placed so as to definitely control belt tension to any desired tension, but the actual load required of the driven machine can be measured and provided for immediately after installation. This permits minimum wear on the pulley and motor bearing, and a belt tension that greatly lengthens the life of the belt. Power consumption is held at the minimum and is only that required by the driven machine. Motors installed on machines for a given work that have the work changed can have the motors adjusted so that the new requirement is met by the individual motor installation without changing the motor. All that is done is to move the motor on the adjustable arms to the new position."

The bases are shipped in the position shown at 1 (Fig 2.) and the adjustable arms make it possible to move the motor from this location to those of 2 and 3 in Fig. 2. An accurate control of belt tension is provided. After the drive has run a while the pulleys may be checked for belt slippage. If there is any slippage, it means that the load

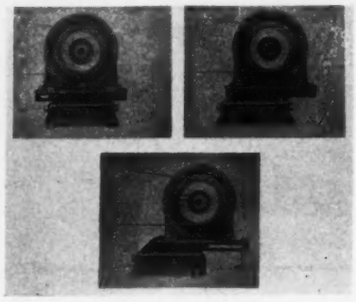


Fig. 2.

is higher than that allowed for so the motor is moved until the tension is sufficiently increased to eliminate the slippage. If there should be no slippage, but the motor should run too warm, indicating too high bearing pressure on the pulley end motor bearing, the motor weight may be adjusted so the bearing pressure is lessened to permit a normal temperature in the motor.

The drive uses flat belt and flat paper pulleys, the company points out, to provide a positive yet flexible drive. They continue by saying, "It has the full overload capacity of the best leather belting, over 75 per cent, and each drive is installed with 150 per cent of the motor rating. It has the leather belt's ability to increase in capacity whenever the belt is overloaded."

With this newly designed base the list of drives carried in stock has been increased to 100-hp., 1,800 r.p.m. Larger bases of special welded steel construction are available to order. The new bases have replaced the old bases in all stocks.

:: :: ::

Saco-Lowell Automatic Rack Release for Pickers.

Saco-Lowell Shops, 147 Milk Street, Boston, Mass., are now marketing as standard equipment on Saco-Lowell pickers, an automatic rack release. Prior to the use of this improved device, it is explained, if the picker operator did not release the pressure on the lap pin as soon as the machine knocked off on the completion of the lap, there was a great possibility for the lap to become felted and to split when unrolled. Further, the rolling of the lap on the calender rolls under pressure caused a certain amount of stretch and unevenness.

Doffing a picker prior to the application of this device, it is stated, required a cycle of fourteen distinct motions on the part of an operator. With the new automatic rack release, the number of motions necessary to doff a lap and start the machine is reduced to seven. The raising of the calender racks becomes an automatic operation, relieving the operator of all work attendant to this. The company points out that the mechanism is simple and is readily applied to existing pickers. The following comment is made concerning the device: "The time and labor consumed in doffing a picker have been greatly reduced; in fact, in one New England mill, where this attachment has been installed, a single operator is able to doff and start six one-process pickers in 1½ minutes. In a recent test, a lap was allowed to run on the lap roll for three minutes after the pressure had been released and examination later showed that there was no indication of felting, stretching or splitting, whereas on a machine not equipped with the automatic rack release, felting and stretching occurred in one minute, and the first seven yards of the lap split."

:: :: ::

New Light Weight Electric Hammer.

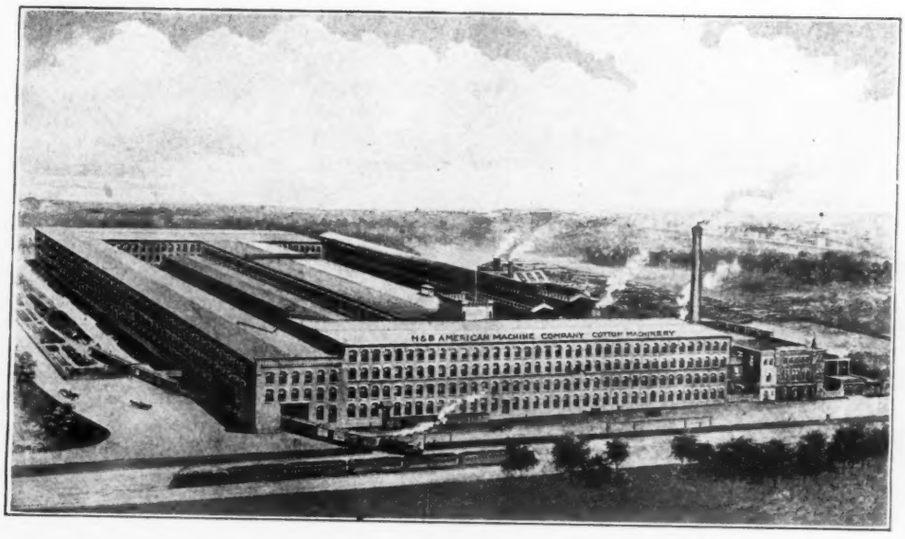
A new electric hammer weighing only nine pounds is now being marketed through distributors by The United States Electrical Tool Company, Cincinnati, Ohio. The light weight is made possible by operating the hammer through a special flexible shaft

Light Weight Hammer.

attachment connected with any light type half-inch electric drill. In addition to the large decrease in weight for a hammer of this capacity, it is claimed that the flexible shaft also prolongs the life of the tool by absorbing the destructive jarring otherwise imposed on the power unit. Specifications claim 4,000 blows per minute up to one inch, finest Swedish steel in the hammer member, and high grade ball and roller bearings throughout.

H & B AMERICAN MACHINE CO.

PAWTUCKET RHODE ISLAND



BUILDERS OF

COTTON PREPARATORY & SPINNING MACHINERY

INCLUDING

A-1-ONE PROCESS PICKING

REVOLVING FLAT CARDS

NEW MODEL MECHANICAL STOP MOTION DRAWING FRAMES

SLUBBING-INTERMEDIATE-ROVING FRAMES

NEW MODEL HIGH DRAFT SPINNING FRAMES

MEDIUM AND HEAVY PATTERN TWISTERS

——ATLANTA OFFICE——

815 THE CITIZENS & SOUTHERN NAT'L B'K BL'D'G.

NEWS ITEMS *with a Textile Slant*

Bassill Made Vice-Pres. and Gen. Mgr. of Tubize-Chatillon.

John E. Bassill has been elected vice-president and general manager of the Tubize Chatillon Corporation. Previously Mr. Bassill held the position of vice-president. Assisting Mr. Bassill in actual charge of the plant operations will be F. C. Niederhauser, previously a part time executive, who is now devoting all of his time to the Tubize organization.

Mr. Bassill has been associated with the Tubize Chatillon Corporation for approximately ten years, having originally started with the corporation when its headquarters were located in Philadelphia. Mr. Niederhauser has had wide experience in rayon production over a number of years and is considered by many to be one of the leaders in the production end of the rayon industry.

:: :: ::

Sloan Heads General Arbitration Council.

George A. Sloan, president of the Cotton-Textile Institute, has been elected chairman of the General Arbitation Council of the Textile Industry, succeeding Walker D. Hines, the first chairman, and the moving spirit in the formation of this organization, whose resignation was accepted with regret.

At the meeting on December 15th, Frederick A. Colt, secretary, made a report of the current activities of the council, giving the details of interesting arbitration proceedings held under its auspices and which resulted in unanimous awards by the arbitrators, usually three in number. Mr. Colt referred to one case which was held by order of the court under an arbitration clause in the sales contract where the counsel for the losing party unsuccessfully attempted to have the award vacated. Reference was also made to other cases where the transcript of the proceedings was carefully examined by the attorneys of the losing party but in none of these cases has any attempt been made to vacate the award. Ninety per cent of the cases so far heard have resulted in a definite allowance or rejection of the claim submitted. In no such cases did the award constitute a so-called compromise decision.

In these formal proceedings the Council uses every precaution to have well qualified and impartial arbitrators selected, the majority of whom have come from the panel of arbiters set up by the Council, including one hundred names of manufacturers, finishers and merchants from the membership of its various associations. The panel contains also the names of a few important representatives from other branches of the industry including factors and wholesalers whose services may be desirable.

The secretary reported that the council is now functioning successfully and offers its services for discussions on disputes in the cotton goods industry either to facilitate direct settlements or to conduct formal arbitration proceedings under its rules.

:: :: ::

"Whitin Machinery Travels Marco Polo's Trail".

This is the title of a most interesting brochure recently distributed by Whitin Machine Works, Whitinsville, Mass., representing copy of a letter to E. K. Swift, treasurer, from the native representative of Whitin in China. Written in the verbose, romantic style of the typical Chinese using English, the letter contains much interest and entertainment.

:: :: ::

Truscon Takes Over Berger.

The Truscon Steel Company, Youngstown, Ohio, has taken over the Berger Manufacturing Company building products division at Canton, Ohio, and will continue to operate it as Berger building products division of the Truscon Steel Company, continuing with Berger's policies and retaining their selling organization.

:: :: ::

Bruce McCullough Joins Franklin Process Company.

Effective January 1st, J. Bruce McCullough is manager of the newly organized natural or grey yarns department of the Franklin Process Company and associated companies. This new department will furnish a complete yarn service; its purpose is to establish its own standards of quality based upon general customer demands or requirements, endeavoring as unique a service as possible. Mr. McCullough has been associated with the cotton yarn trade for many years, most recently with Amoskeag Mfg. Co.'s yarn department.

:: :: ::

Plans for Greenville Textile Show.

Further information has been released concerning the tenth Southern Textile Exposition, which will be held at Textile Hall, Greenville, S. C., October 17th to 22nd inclusive. An announcement issued by headquarters on December 17th stated:

"The allotment of exhibition space for the tenth Southern Textile Exposition is nearly completed. So many reservations have been made it will be necessary to erect a temporary annex, as in the past two expositions. Land adjoining Textile Hall has been leased for the purpose. By this arrangement the entire ground floor is tied in as one building.

"Due to the exhibition of spinning machinery and to the enlarged requirements of other manufacturers, some changes in the diagram of the second floor have been made.

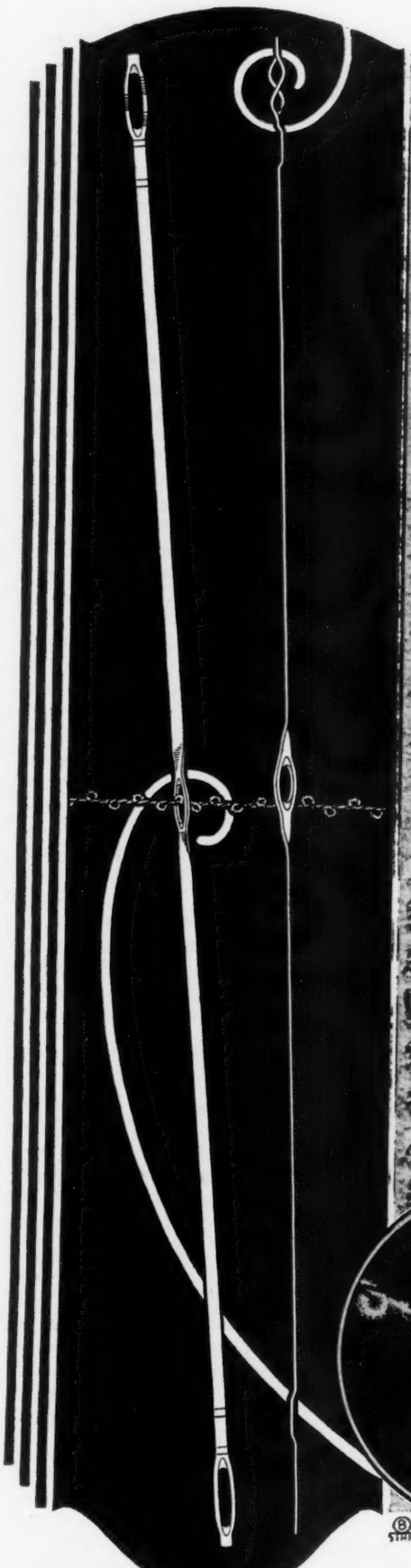
"The program for Textile Week will include a number of interesting features, chief among which will be the autumn convention of the Southern Textile Association. Other meetings will be held. For the comfort and convenience of exhibitors and for entertainment of visitors the management are making more extensive plans than ever before. The selection of the exposition personnel has been made. The manager will be William G. Sirrine, president of the corporation, with Bertha M. Green, secretary, assisting."

:: :: ::

New Sulphonating Equipment for Quaker City Chemical Co.

The southern branch of the Quaker City Chemical Co., Knoxville, Tenn., has let contracts and purchased materials for a new and up-to-date sulphonating equipment with installation of several new compounding tanks. This additional equipment will permit this company to manufacture a complete line of products for the textile industry in its Knoxville plant. R. J. Quigg has removed from the Philadelphia plant and will be connected with the southern plant in the future.

W. S. McNab, vice-president and southern manager of this company, states that these preparations are being made to insure prompt service and high quality products from freshly compounded stocks. The parent plant of the company is in Philadelphia, with a large branch plant in Hamilton, Canada.



The HEDDLE for KNOBBY YARNS

Specially designed for the weaving of the popular fabrics made of knobby yarns.

Large eye, turned half way round permits the free passing of this irregular warp thread.

Eliminates all danger of chafing and obstruction.

Lower your costs with increased production by the use of this Special Heddle.

Send us a sample of what you are weaving and we will recommend the proper heddle.

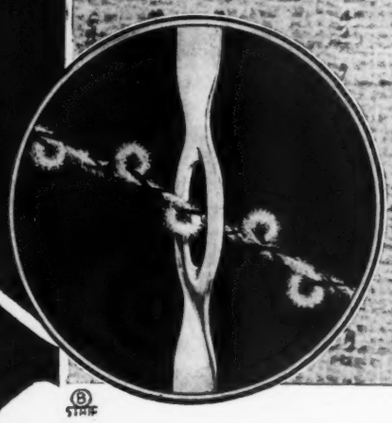
Steel Heddle Mfg. Co.

Main Office and Plant
2100 W. Allegheny Ave.
Philadelphia, Penna.

Southern Plant:
Steel Heddle Building
621 E. McBee Ave.
Greenville, S. C.

New England Office:
44 Franklin St.
Providence, R. I.

Foreign Offices:
Huddersfield, Eng.
Shanghai, China



Note in enlarged view how the rounded, glass-smooth eye, almost a half turn, permits free unobstructed passage of warp thread without chafing. Also note scientific crimping at top which prevents heddle turning on bar.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

JOHN J. BROWN was made secretary and treasurer of the Eastman Cotton Mills, Eastman, Ga., on January 1st. For the past several years Mr. Brown has been a representative of the Borne, Scrymser Company of New York City with headquarters in Atlanta.

WALTER E. GLEADALL has been appointed head dyer of the Magnet Mills, Inc., Clinton, Tenn. Mr. Gleadall was formerly president and treasurer of the Merit Dyeing Co., Philadelphia, Pa.

DAVID S. MITCHELL, formerly overseer of cotton carding with the Hamilton Woolen Company, Central Mills Division, Southbridge, Mass., is now connected with the Merrimack Manufacturing Company, Lowell, Mass., as overseer of carding.

O. L. WAGSTAFF is superintendent of the Anchor Mills, Huntersville, N. C., which recently resumed operations manufacturing yarns after a long period of idleness. Until recently, Mr. Wagstaff was superintendent of the Amazon Cotton Mills, Thomasville, N. C., having held that position for 20 years.

D. A. LONG, JR., secretary of the Amazon Cotton Mills, Thomasville, N. C., has been made general manager, and W. H. CURLEE has been promoted from assistant superintendent to superintendent at this plant.

EDWARD COBB has become overseer of weaving at the Aiken Mills, Bath, S. C., succeeding H. H. WOOD, resigned.

Lee F. MCLEMORE has become superintendent of the Davidson Cotton Mills, Davidson, N. C., succeeding his father, D. W. MCLEMORE, who is now general superintendent of the Carolina Textile Corporation, Dillon, S. C., D. W. MCLEMORE, JR., formerly overseer of carding, at Davidson, now has charge of the spinning as well as the carding.

E. M. BRINKLEY has become master mechanic and chief engineer at the Lancaster Cotton Mills Co., Lancaster, S. C. He was formerly chief engineer of the McClaren Rubber Co., Charlotte, N. C.

A. F. BRUTON has returned to his former position as superintendent of the Dacotah Cotton Mills, Lexington, N. C., which recently resumed operations. J. B. WRIGHT has become overseer of carding, and W. R. COGGINS, formerly superintendent of the Inverness Mills Co., Winston-Salem, N. C., is overseer of spinning and warp preparation.

FRED BABBINGTON has become overseer of the cloth room at the Dilling Cotton Mills, Kings Mountain, N. C., succeeding ERNEST BUCKNER, resigned. Mr. Babbington was formerly connected with the Cleveland Cloth Mills, Shelby, N. C.

T. S. CROW has become overseer of carding at the Griffin Mills, Griffin, Ga. He was formerly at the Drayton Mills, Spartanburg, S. C.

C. W. BATES has been made assistant sales manager of the switch and panel division of the Square D Company, with headquarters at the Detroit factory. Mr. Bates was formerly manager of the branch office in Chicago, where he is succeeded by G. S. BLOMGREN. C. LEWIS HULL is sales manager of the division.

ROBERT H. MORSE, formerly vice chairman of the board of directors, has been elected president and general manager of Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago. Ill., succeeding W. S. HOVEY, resigned. Mr. Morse is a son of the founder of the company, and has been associated with it for 36 years, during which time he has been employed in various positions as salesman, department manager, branch house manager, sales manager, president of the manufacturing division, vice-president in charge of purchases, first vice-president, and vice-chairman of the board.

Mr. Morse.

S. A. LOVELACE has become superintendent of the Puritan Weaving Co., Fayetteville, N. C., succeeding C. C. FISHER, who has been transferred to a similar position at the Sherwood Tapestry Mills, Burlington, N. C. Mr. Lovelace was formerly overseer of weaving at the Dunean Mills, Greenville, S. C.

CASON J. CALLAWAY, of LaGrange, president of the American Cotton Manufacturers Association, WILLIAM J. VEREEN, of Moultrie, who is a past president of this association, and WM. D. ANDERSON, president of the Bibb Mfg. Co., Macon, Ga., were among those named by GOVERNOR R. B. RUSSELL, JR., of Georgia, to the newly formed board of regents of the University of Georgia educational system. Mr. Anderson was subsequently named as chairman of the board.

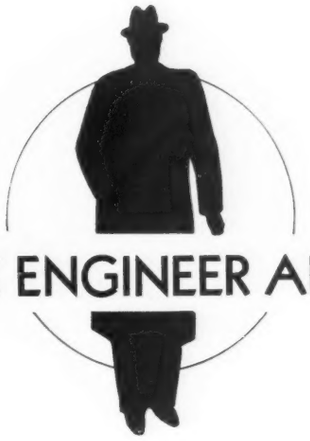
Obituary.

CHARLES WESTFIELD COKER, president of Sonoco Products Co., Hartsville, S. C., and one of the leading business men of the South, died at his home on Saturday, November 21st, following a heart attack. Mr. Coker was 53 years of age. In addition to active management of the Sonoco company, Mr. Coker was a director in the North Carolina Bank and Trust Co., Pioneer Life Insurance Company, and Textile Paper Tube Co., London, England. He had twice served as mayor of Hartsville, and from 1920 to 1928 was a member of the State Board of Public Welfare, and from 1917 to 1925 was a member of the State Tax Commission. He served as state senator in 1930, and had been president of the Hartsville Chamber of Commerce for 28 years at the time of his death. Mr. Coker was also vice-chairman of the South Carolina Power Rate Investigating Committee, and district chairman of the South Carolina Progress Association. He is survived by his widow, two sons, James and Charles, and several brothers, one of whom is David R. COKER of Hartsville.

ALLEN J. GRAHAM, of Greenville, S. C., died on November 29th, following a heart attack. He was 46 years of age. Mr. Graham had formerly been president of the Camperdown Mills of Greenville.

ROBERT L. HUFFINES, secretary of the Rockfish Mills, Inc., Rocky Mount, N. C., died on December 3rd after a protracted illness. He was 58 years of age, and is survived by Mrs. Huffines, one son and five daughters.

THE BEDAUX PRINCIPLE DEALS WITH THE HUMAN ELEMENT ALONE



HOW THE BEDAUX ENGINEER APPLIES THE SYSTEM

The Bedaux engineer—a thoroughly trained expert—adapts Bedaux measurement, control and wage payment to conditions as he finds them. He utilizes existing clerical facilities and adapts to his needs such forms as are already in current use. No sweeping changes to create uncertainty and confusion within the client's organization.

He makes no change of physical layouts, and does not interfere with existing methods and processes.

The Bedaux engineer is a student of human nature, with a sympathetic understanding of the worker's point of view. He eventually brings the worker to see both the protective nature of Bedaux measurement, and the opportunity thus presented to have individual ability and diligence definitely recognized and adequately rewarded. Understanding and enthusiasm are built up in advance of actual application.

With the Bedaux principle in operation, the worker takes a new interest in his daily routine. His record speaks for itself as compared with that of a less competent neighbor and he has a better chance to prove his fitness for promotion. Prejudices are defeated and favoritism balked.

The Bedaux Principle has averaged a 44% increase in production, a 20% saving in labor costs, and a 15% increase in wages in the 400 plants now using the system.

Write for booklet, "BEDAUX MEASURES LABOR."

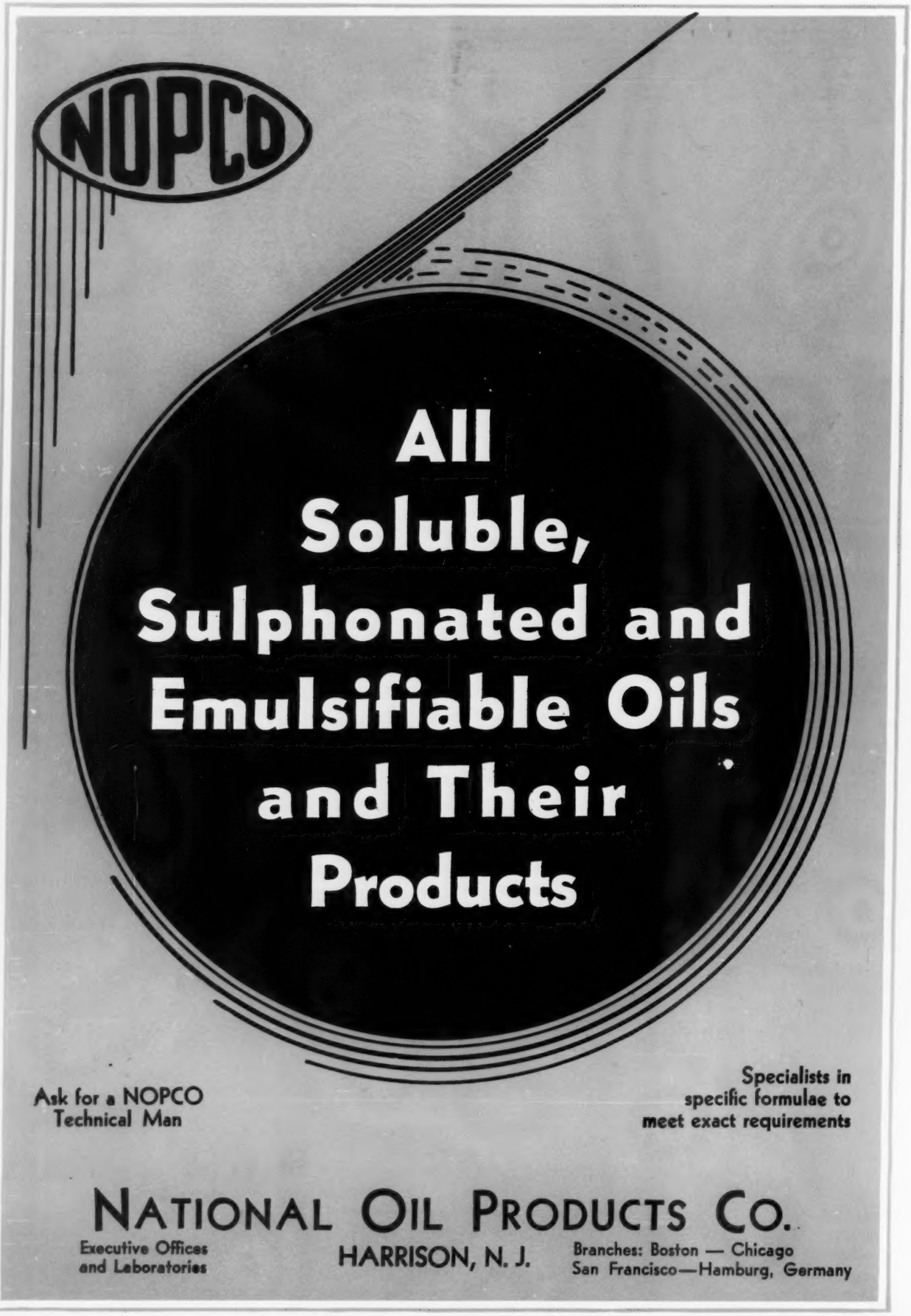
THE CHAS. E. BEDAUX COMPANY

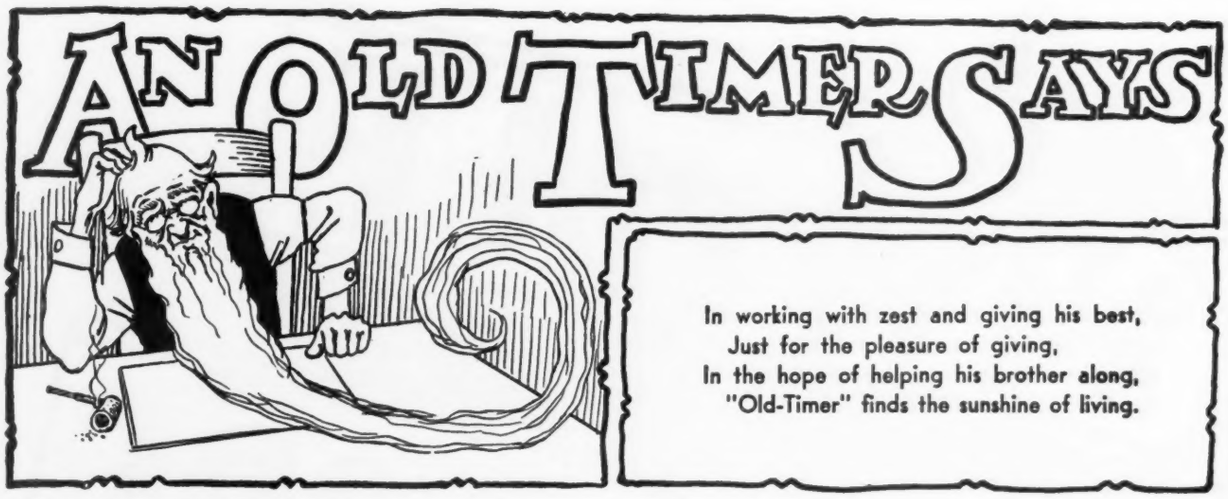
OF NEW YORK, INC.

DOUGLAS S. KEOGH, President
J. J. SKELLY, Gen. Mgr.
22 East 40th Street
New York City

H. B. CRAFT, Vice President
in charge of Southern Operations
30 Camden Road, Atlanta, Ga.

THE BEDAUX PRINCIPLE DEALS WITH THE HUMAN ELEMENT ALONE


NOPCO
All
Soluble,
Sulphonated and
Emulsifiable Oils
and Their
Products
Ask for a NOPCO
Technical Man
Specialists in
specific formulae to
meet exact requirements
NATIONAL OIL PRODUCTS CO.
Executive Offices
and Laboratories
HARRISON, N. J.
Branches: Boston — Chicago
San Francisco—Hamburg, Germany


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

Will You Answer this Letter for Me?

DEAR OLD-TIMER:

This afternoon I enjoyed a most profitable conversation with one of the most capable superintendents I visit. He's not one of the popular kind, in many ways, with visitors, because, in keeping with a doctrine which he practices as well as preaches—he spends most of his time on the job, which in his case means in the mill. He's a comparatively young man, as ages go in this business, but he's practical and level-headed, and I've noticed at meetings and in smaller groups, older men respect his opinion and experience.

He and I fell to talking about several mutual friends—cotton mill men, naturally—who are temporarily out of employment, and we were comparing the abilities of one with those of the others. Perhaps, true to a human trait, the reason I considered his remarks so sensible was because we agreed on so many phases of the subject; at any rate, while the rest of the family is keeping up with Amos 'n' Andy, I am going to tell you of our conversation, and ask you a question.

We were discussing and trying to identify that elusive and intangible quality that makes one mill man stand out above another; that thing which, barring immediate impossible circumstances and the misfortune of depression which affects some, causes the men who have the good jobs to be sought for other jobs; that "secret" which causes them, in short, to be successful. Now we both are ardent students of your articles, and recall your discussion of "It," which, after all, may be the quality we were trying to define.

Anyhow, we considered the possibility of deciding that it is aggressiveness, energy, punctuality, practical knowledge, reliability, personality—in fact, we practically exhausted the list of those commonly-acknowledged virtues of a business man and executive, and none of them seemed exactly to answer the requirement. All of them are essential, and more, but, we mused, isn't there some one word which will encompass all of these necessary traits; is this business of being a success on one's job dependent on a strict adherence to a set of rules of conduct and action; isn't there one major trait that will distinguish the wheat from the chaff, the strong from the weak, that will emphasize a man's strong points and compensate for his shortcomings, be they lack of experience, of education, of training . . .

And my superintendent friend gave the answer: *Attitude!* It struck me as rather indefinite until he explained:

"I mean a man's attitude toward his job, toward his help, toward his employer, toward things in general. Chances are if his attitude is *right* in one respect, it'll be right in all the others. Assuming a reasonable amount of common sense, which most of us have, let me know a man's *attitude,* and I can tell you his chances for success.

"Attitude is commonly considered to be the viewpoint you have on something, your opinion of it, how you look at it—but it has a deeper meaning. Attitude means, to me, having that interest, that understanding, that enthusiasm which you will find in every man who runs his job as it should be run—and by that I mean the man who not only may keep accurate records, and have low seconds and low cost and good wages and all that, but who, along with doing all of that, does so with a sense of his responsibility and who realizes out of his accomplishments a genuine, glowing satisfaction in having rendered a service of some kind.

"Attitude means trying to keep *ahead* of your job.

Notice to My Readers.

THE editor and I, of course, carry on quite a bit of correspondence. Most of it would not be suitable for publication because of course our ideas do not always co-incide. I am sure my readers will understand what I have in mind, especially since he is usually about as hard headed as I am.

The other night, however, he changed his tactics and wrote me a letter which I am using on my page this month. I would like to ask those of you who read it to write to me giving me your opinion and experience on the subjects he mentions. I have my own ideas about them, of course, but it would be helpful to me if you would give me yours.—Old-Timer.

FOR DESIZING

- Unsurpassed in its actions.
- Very economical in its use.
- Quick and complete conversion of the starch.
- Especially suited for desizing by continuous process method.

GENERAL DYESTUFF CORPORATION

GDC

230 Fifth Avenue · New York, N. Y.

I've got one of the best carders in the state, I think, but every now and then I have to call his attention to a rattling comb box, or some other such detail. He 'knows his stuff,' he makes good roving, and he handles his help wonderfully, and doesn't give us any trouble in the village—but, as I tell him, I shouldn't have to remind him of such things; the proper attitude on his part would have made his chair feel like an iron grill to him when he got 'caught up,' and start looking for rattling comb boxes, and the like."

I said I thought I was beginning to see, and told him of a mutual acquaintance who is superintendent of another mill and who, I honestly think, is going to be one of the outstanding operating executives in the country before he's forty-five years old, and that won't be more than ten years from now. This fellow's mill was on short time, and one day, when he had actually "caught up" with everything, he went to the office and got out some designing paper and started figuring out some new patterns for his mill, trying to see if he could work out something everybody else wasn't making, something there would be a profit in, for a while, at least. He worked up a large number of suggestions, and submitted them to the agent (who later told me the story). The agent, having been accustomed to the two- and three-harness work they had been on for years, wasn't overly enthusiastic, but, at the insistence of the superintendent, let him weave up some of them and have them finished according to his ideas. They then took them to the mill president, who carried them to his selling house in New York. The result is that that mill is running 25 styles today that a few years ago they wouldn't have dreamed of; some converted dobbies that had been taken off of moleskins are running; and recently a large (I mean several hundred thousand yards) order was taken, at a profit, on some of these new constructions which this mill had never made before.

All because this young superintendent had the right attitude. He wasn't looking for credit—that was furtherest from his thought—he made use of available time in trying to get something that would put his mill on a better schedule.

"That's an angle on it," my friend said. "And—well, take my spinner: I'd rank him up with my carder any day, and yet his attitude needed a little straightening from another angle. At our last overseers' meeting I asked them if they knew what the word Harmony meant. They all gave me definitions of one kind and another, and I told them I wanted them, when they went home that night, to write out that word Harmony five times, on any kind of paper—notebook, top of a newspaper, or anything, and look the meaning up in the dictionary and study it.

"Well, a few days later the spinner came to me and said the next day one of his men did something he didn't like, and he bawled him out, and he went on down to the other end of the room and saw something that didn't suit him, and that made him madder, and when he went home to supper and snapped at his wife, and she asked him what had gotten into him, and then, he said, 'All of a sudden it dawned on me: I'd been out of Harmony with everybody and everything that day.' Get the idea? His attitude wasn't right."

Now, OLD-TIMER, I realize that this may possibly be threshing old straw, so far as you are concerned, but I do believe that we were started on the right track, when just then somebody in the mill sent for my friend and I came on back to Atlanta. I was just getting ready to ask him what part he thought Initiative played in building up the right Attitude, so far as cotton mill men are concerned, and that's the question I'm going to ask you. I have really become quite wearied in seeing recently some otherwise good men in other lines of work lose out because they didn't exercise any Initiative. They did everything they had been told to do, yes; they followed carefully the routine of the job along the lines it had always been done, but, somehow, when they were put in a position that required them to use their own head, to make a decision, to do more than they had been told or sent to do, something was lacking. In several instances, I was familiar with the circumstances, and it was true that to all appearances they fulfilled their missions when they had carried out instructions, when unanticipated developments made a better job possible simply by taking advantage of an unexpected opportunity to use the old bean and exercise some Initiative—and they didn't do it.

Why? Have you noticed this shortcoming in many people, on different jobs in a mill? Just how would you illustrate the necessity of Initiative in mill work? Is it a common failing? Do you think this trait is as essential in mill work as I am sure it is in other lines? Can you give me some examples?

There! Instead of one question, I've asked you a basketful, but I feel sure you can make a definite contribution to the investigations my friend and I are making into this subject, by telling us something about Initiative in connection with mill work. How about it?

THE EDITOR.

Saco-Lowell to Move Newton Upper Falls Plant to Maine.

Saco-Lowell Shops have announced that the directors have voted to consolidate the manufacturing operations at Newton Upper Falls, Mass., into Biddeford and Saco, Maine. The company has acquired several large buildings of the York plant which are adjacent to its present plant in Biddeford, containing about the same floor area as the buildings in Newton Upper Falls exclusive of the foundry; and the well equipped foundry in Biddeford can be enlarged to provide ample capacity for the consolidated shops' requirements of castings.

The productive capacity of the company will not be lessened by the move; rather its ability to serve the industry will be strengthened, the announcement states. Efficiency and economy of manufacturing, and permanent operating savings, will be effected by the consolidation of equipment and personnel into one location, it is pointed out. It is expected that the consolidation will be virtually completed sometime in April.

Audit the Past and Budget the Future

More and more, the dividends of success depend on *reliable facts and figures.*

To know the true financial position of a business and, in their true proportion, the elements entering into its operating results, calls for an adequate independent audit embodying proper analysis of income and expenditures. This is fundamental.

Planning, or *budgeting*, is effective only to the extent that management has available the basic data for the purpose. The analysis of facts incident to budgeting, and the frequent comparison of actual operating results with the budget, point out the deficiencies in organization and waste in operations and expenditures. Such analyses and comparisons are chart and compass to progress and success.

Progressive management *knows* that it must know; *audits* the past, and *budgets* the future.

"BUDGET CONTROL, *What It Does and How to Do It,"* a 40-page booklet issued by Ernst & Ernst, will be mailed by nearest office on request.

ERNST & ERNST

ACCOUNTANTS AND AUDITORS—SYSTEM SERVICE

AKRON	CHICAGO	DENVER	HOUSTON	LOS ANGELES	NEW YORK	RICHMOND	TAMPA
ATLANTA	CINCINNATI	DETROIT	HUNTINGTON, W.VA.	LOUISVILLE	OMAHA	ROCHESTER	TOLEDO
BALTIMORE	CLEVELAND	ERIE	INDIANAPOLIS	MEMPHIS	PHILADELPHIA	ST. LOUIS	TULSA
BIRMINGHAM	COLUMBUS	FORT WAYNE	JACKSON, MISS.	MIAMI	PITTSBURGH	ST. PAUL	WASHINGTON
BOSTON	DALLAS	FORT WORTH	KALAMAZOO	MILWAUKEE	PORTLAND, ME.	SAN ANTONIO	WHEELING
BUFFALO	DAVENPORT	GRAND RAPIDS	KANSAS CITY	MINNEAPOLIS	PROVIDENCE	SAN FRANCISCO	WINSTON-SALEM
CANTON	DAYTON	HARTFORD		NEW ORLEANS	READING	SEATTLE	YOUNGSTOWN

CLINTON STARCHES

FOR ALL TEXTILE PURPOSES

Manufactured by

CLINTON CORN SYRUP REFINING COMPANY

CLINTON, IOWA

QUALITY SERVICE

BARBER-COLMAN

AUTOMATIC SPOOLERS
HIGH SPEED WARPERS
WARP TYING MACHINES
WARP DRAWING MACHINES
HAND KNOTTERS

BARBER-COLMAN COMPANY

General Offices and Plant

Framingham, Mass. ROCKFORD, ILL., U. S. A. Greenville, S. C.

ATLANTA HARNESS & REED MANUFACTURING CO.

MANUFACTURERS OF

HARNESS	REEDS
COTTON — MAIL EYE SELVAGES	COTTON — DUCK ALL METAL
SPECIAL TWIST CABLE	SLASHER-COMBS-STRIKING

NUMBERED DUCK ALUMINUM HEDDLE FRAMES

All Standard Types Heddle Frames and Heddle Frame Parts

Satisfactory Service Since 1919

Main 0517 ATLANTA, GEORGIA P. O. Box 1375

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

It's the Relative, Not the Actual, Humidity.

A clear and clarifying discussion of an important subject that is often misunderstood.

EDITOR COTTON:

It is the relative humidity, and not the actual humidity that determines the moisture regain in cotton exposed to the air. Although this has been a matter of fundamental knowledge in humidifying air ever since artificial humidification has been practiced, there are still quite a few persons in charge of cotton mills, or cotton mill departments, who have the fixed idea that if the actual humidity is kept constant, the moisture regain will remain the same. I had an argument with a spinner in a very large mill several years ago about this very point. This man maintained that if he could keep five grains of moisture per cubic foot of air at all times his work would run better than under any other conditions. No amount of argument or explanation could shake his belief in this theory.

Since that time, there have been several occasions when I have found persons who should know better, clinging to the actual humidity idea. Since the maintenance of a constant moisture regain in cotton manufacturing is such a very important matter, it would seem that this is a point on which there should be pretty definite knowledge on the part of agents, superintendents, and foremen.

Humidity is moisture in the air. The air has varying capacities for holding moisture in suspension at different temperatures, and the relative humidity is the ratio between the actual humidity at any given temperature and the total possible actual humidity at that temperature. Actual humidity is, of course, the amount of moisture in a given volume of air, and is expressed in terms of grains per cubic foot. At a temperature of 70 degrees Fahrenheit, air will sustain a maximum actual humidity of 8.0 grains of moisture per cubic foot. At this temperature, it is impossible for air to hold more water than this, and if the water is injected into the air, it will not be absorbed, but will simply fall to the ground as mist.

If, at 70 degrees F. there should be 6.0 grains of moisture per cubic foot, the air has a relative humidity of 75 per cent. If it contains 4.0 grains per cubic foot, it has a relative humidity of 50 per cent. If now, we lower the temperature of this same air to 66 degrees F. we have cut its capacity for sustaining moisture in suspension, and it will only hold 7.0 grains of moisture per cubic foot when saturated. If, on the other hand, we raise its temperature to 77 degrees, it now has a maximum capacity of 10.0 grains per cubic foot, and at a temperature of 83 degrees it can carry 12.0 grains of moisture at saturation.

To clearly get a picture of the effect of humidity on cotton, let us assume that we have a glass jar that has a cubical content of exactly one cubic foot, and that we can seal this jar so as to be air tight. Into this jar we will put 100 grains of bone dry cotton; that is, a quantity of cotton which weighs 100 grains when all moisture has been removed from it. We will also assume that we have 10.0 grains of moisture in the air in this jar, so that no matter what temperature we produce, the actual quantity of water inside the jar is the same.

Since the volume of the cotton in the jar is negligible, we can figure that we have 10.0 grains of moisture per cubic foot of air when the water is all in suspension. Now, as mentioned before, at a temperature of 77 degrees F., all of the water in the jar would be vaporized if there were no cotton present, but since we have 100 grains of cotton in the jar, and since cotton is highly hygroscopic, the air will behave very differently when there is cotton present. With no cotton, any temperature below 77 degrees would produce condensation of moisture in the jar, as the air cannot possibly hold any more than 10.0 grains at that temperature. However, the cotton can hold a considerable amount of moisture, and so, instead of 100 per cent relative humidity at 77 degrees, it would be much less than this; about 42 per cent in fact. The cotton will now contain 5.8 grains of the total of 10.0 grains of water, and the air will contain 4.2 grains.

Let us now reduce the temperature of the jar to 66 degrees F. With air alone in the jar, we would have 7.0 grains of moisture in suspension, and 3.0 grains condensed as water on the surfaces of the jar. The presence of the cotton, however, alters matters materially. The cotton will now contain about 6.6 grains of moisture; the air 3.4 grains, and the relative humidity will be about 48 per cent. Now we will

◆ ◆

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and willl be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

raise this temperature to 83 degrees, and at that point, if there were no cotton in the jar, we would have all of the moisture in suspension and a relative humidity of about 84 per cent. With the cotton in the jar, we have instead a relative of about 39 per cent; with about 5.4 grains of moisture in the cotton, and 4.6 grains in the air.

Continuing, we will raise the temperature to 89 degrees, and if we neglect the cotton we will have a relative of only 70 per cent. Pushing the temperature up to 94 degrees gives a relative of 60 per cent, and at 97 degrees, only 55 per cent. At this last point, with the cotton in the jar, we would have 4.5 grains of moisture in the cotton, and 5.5 grains in the air.

I do not have at hand a psychrometric chart that goes below 60 degrees or above 99 degrees, and therefore cannot follow this through for higher or lower temperatures, but at these extremes, we would have about the following conditions. At 60 degrees, the relative humidity would be about 51 per cent; the cotton would contain about 7.1 grains of moisture, and the air about 2.9 grains. At 99 degrees, the relative would be about 32 per cent, and there would be about 5.9 grains of moisture in the air, and about 4.1 in the cotton.

This shows graphically the tremendous differences in the amount of moisture present in cotton at various relative humidity and actual humidity conditions, where the same amount of moisture is constantly present for the air and the cotton to divide between themselves. It is at once apparent that the actual humidity has no bearing on the matter whatever, unless the temperature is constant. With a constant amount of moisture present, an increase in temperature causes the cotton to lose and the air to gain moisture. Lowering the temperature reverses the process.

In practical humidification, the same laws govern as in the case of the sealed jar, but there are a number of complications introduced. The same effect of rising temperature occurs, however, and is responsible for an immense amount of trouble and bad work in cold weather. The mill cools off during the night, or over a week-end. On starting up, the temperature is raised, and the relative humidity and moisture regain drop rapidly. The cotton in process begins to dry out, and there is a great deal of static.

Assume that the temperature during the night has dropped to 60 degrees, and that the relative humidity is 50 per cent; corresponding to a moisture regain of about 7.0. There would then be about 2.9 grains of moisture present per cubic foot of air. Raising the temperature to somewhere between 75 and 80 degrees; say 77 degrees, will give a relative humidity of 29 per cent and a moisture regain of about 4.5 per cent, unless moisture has been added to the air. To maintain the desired regain of 7.0 per cent at the new temperature of 77 degrees, it is necessary to have 5.2 grains of moisture per cubic foot of air, or 2.3 more grains than before. In a fair sized room, containing about 250,000 cubic feet of air, 82 pounds of water will be required to simply keep the relative humidity where it was at the lower temperature.

This represents a minimum regain condition. If higher regains are desired, the corresponding moisture input to maintain them with rising temperatures must be greater. In speaking of minimum regain, I do not mean that 7.0 per cent is the minimum regain at which work will run, but it is about the minimum at which work will run with rising temperatures. When a room that has been held at about 60 per cent relative with a temperature of about 80 degrees all day is allowed to cool off, the moisture regain tends to go up during the cooling process. Then when the room is warmed again, the regain drops rapidly, and it is very hard to run work on a falling regain. Cotton works best when gaining moisture, and runs poorly, if at all, when losing it.

I hope that I have made it clear that actual humidity means nothing in determining regain, and that regain is a product of relative humidity, temperature and time. As the temperature increases, it takes a higher relative to maintain the same regain as at lower temperatures, so that maintaining a constant relative humidity in a room will not keep a constant regain, unless the temperature is kept constant. And keeping a constant actual humidity is impossible, unless the temperature is constant, or the room is air-tight, and sealed against outside conditions. An actual humidity that might be far too low for satisfactory operating conditions at normal temperatures, would cause precipitation, and rust all the machinery at a lower temperature.

J. S. B. (S. C.)

What is the Life of Spinning Bands?

Spinners are especially invited to submit their ideas and experiences as to ways of improving band life.

EDITOR COTTON:

I am writing relative to a mill where the tying-on of spinning bands seems to be excessive. During a period of 15 weeks, this mill, which has 15,272 spindles running night and day, tied on 1,272 bands, or about 8⅓ per cent weekly of all the bands.

The construction of the bands used is as follows: They are made entirely of 3.00-hank roving, with 6.60 twist per inch; seven of these roving strands are twisted the first time on the band machine with 4.00 twist per inch, and the second twist per inch on the finished band is 7.00. The finished bands weigh 92 bands to the pound. The bands seem firm and strong and are made from ⅞ to 15/16-inch cotton. The spindle in use is the Whitin gravity, ⅞-inch whorl, speed 9,200 r.p.m. The size of the spindle is Whitin medium. The size of the cylinder is 7-inch. A good grade of spindle oil is used. The mill in question would like to know from others' experience as to whether the banding is excessive, and the probable remedy.

This inquiry of course opens up the possibility of some good discussion on the subject of banding in general, and I would be glad to have those replying bring out any other points in connection with the subject that would be helpful.

CONTRIBUTOR No. 6001.

Question on Winding for High Speed Warping.

Wants experiences as to comparative production of operator on old style spooler and cone winder.

EDITOR COTTON:

In considering the various winding and warping systems, I am puzzled by some of the statements made by winding machinery representatives. They all claim more production per operative over ordinary spoolers, and I must confess to inability to figure that out when the operative has to go through practically the same motions on the winder as she does on the spooler. Perhaps some of your contributors who have had experience with these new machines can tell me how it is done.

If I have to spool and warp 25,000 pounds of 30s yarn in a 55-hour week on my old machines, how many hands should I employ and how many can I save by putting in winders and high speed warpers? My yarn averages two ounces to the bobbin and at present is spun with regular warp build.

CONTRIBUTOR No. 6008.

Answers to Card Room Questions.

These are one man's answers. Any readers who disagree are invited to express their ideas.

EDITOR COTTON:

I get my copy of COTTON each month, and from its pages I get much helpful information, especially from "OLD-TIMER'S" articles and the "HOW OTHER MEN MANAGE" department. "OLD-TIMER'S" articles are very inspirational and are a real treat for a man whose room or section isn't what it should be, for they usually provide him with a thought or idea to apply that will help him put his job on top.

"T. R. (N. C.)" presented some questions in the January issue entitled, "To Pass the Time Away," which I am going to make an earnest effort to answer.

His first question was, "Why are the cones of a fly frame convex and concave?"

In slashing, cones are used for the purpose of decreasing strain and undue tension that would cause the warps produced to stretch and lose the normal amount of elasticity, and therefore run the beam slower as it fills. Picker evener cones are to take care of thick and thin places in laps. As is usually the case, four laps are on the feeder apron, and should one lap run out or get thinner the evener belt moves to the larger end of the driving cone, causing the feed roll and apron to move slightly faster to produce the desired evenly weighted lap.

The question of convex and concave cones, the driving cones being concave and the driven convex, readily shows that it is necessary for this roundness of the convex and the hollow and curves of the concave to be correspondingly correct, making them match by the regularity of distances between them, taking care of the increasing and decreasing distances that are made by the shifting of the cone belt or belts.

The cones take care of the building of the roving on the bobbin on the fly frames, causing the bobbins to run slower as the bobbin increases in size while being filled. By comparison of the sizes of the bobbin at the start and at a fuller point, using rough figures, we say a bobbin is one inch when empty. If the bobbin is running 400 r.p.m. at this stage, it is therefore winding on 400 $\times$ 3.1416, or 1256.6 inches of roving per minute. Then when the bobbin becomes three inches in diameter, it will be necessary for the bobbin to turn only one third as fast, 133.33 r.p.m., or for the front rolls to deliver three times as much roving as delivered when the bobbin was one inch in diameter. As we know the front roll delivery is the same throughout, we know that the bobbin will only make 133.33 r.p.m. This proves that the cones are running slower at this point.

Question No. 2 was, "How is the production constant of a card found?"

We first draw up an equation. We have,

36 inches = 1 yard
27.5 inches = diameter of doffer
7000 grains = 1 pound
3.1416 = circumference constant
90 per cent = running time
600 minutes = 10 hours
1.13 = draft between calender rolls (theo.)

Equation:

$$\frac{27.5 \times 3.1416 \times 600 \times 1.13}{36 \times 7000} = .2096$$

This constant multiplied by the doffer speed times grains per yard of sliver will give the production in pounds per card, allowing 90 per cent running time. If all cards in a room had the same doffer speed, say 9 r.p.m., then it would be practical to include this in the equation to find the production constant, which would be 1.877 in this case with a doffer speed of 9 r.p.m. Then to get the production it would only be necessary to multiply the constant by the grains per yard of sliver in order to get the number of pounds per card per day.

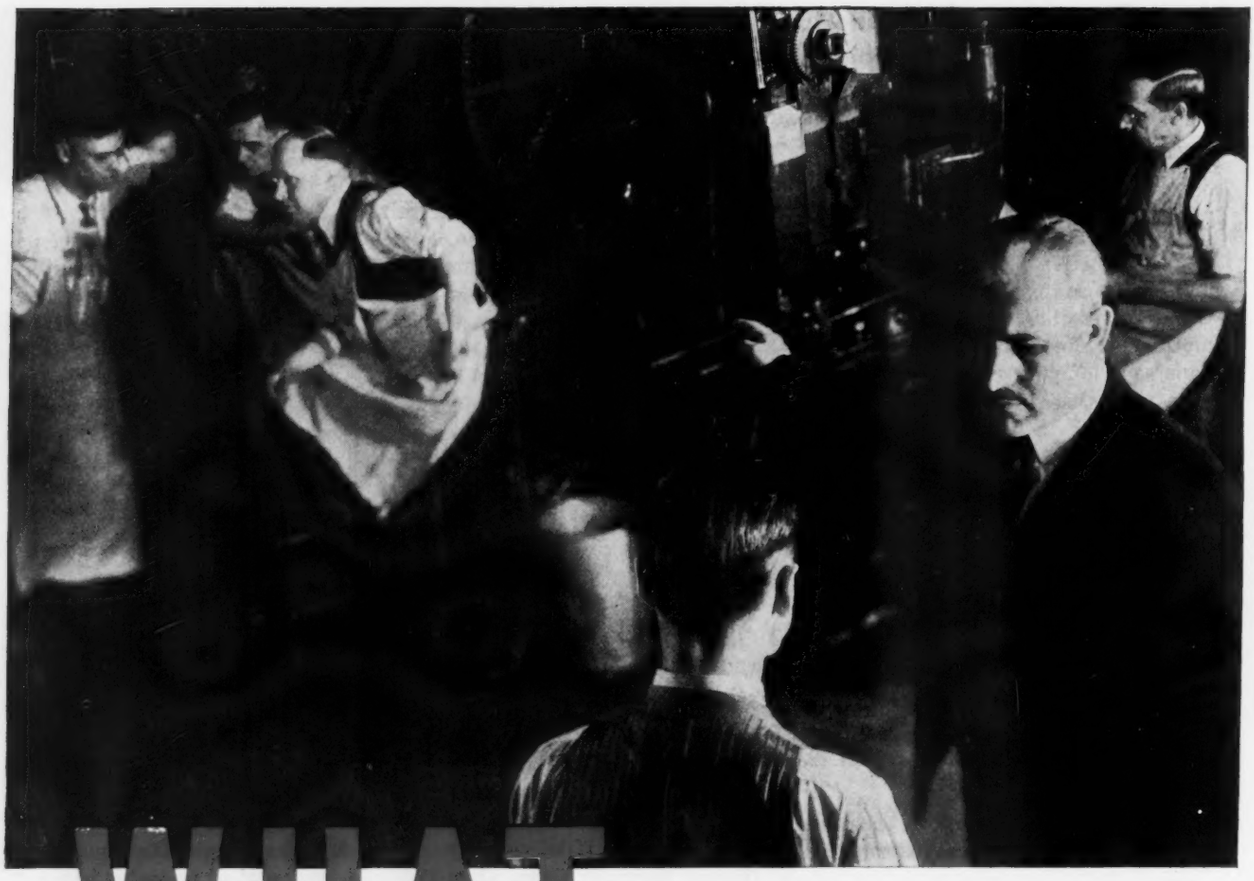
The following rule may always be used to obtain the production per day of a card: diameter of doffer $\times$ 3.1416 $\times$ speed of doffer $\times$ minutes per day $\times$ weight of sliver in grains $\times$ allowance for loss of time $\div$ inches in one yard $\times$ grains in one pound.

The third question was, "How is the production constant found on a fly frame?"

It is not possible to work out a production constant that would be applicable under any and all conditions and that would be of much service, as all the quantities in the production calculation are variable to a large extent. However, the rule for figuring the production in pounds per day of a fly frame is: spindles $\times$ hanks $\div$ hank roving.

Question No. 4. "Does sliver receive any twist from the rotation of the tube gear of a coiler on a card?"

Yes, the turning of the tube or rotation turns enough to give an even lay in the drawing can, and in this length delivered the sliver receives this small amount of twist which is placed in the sliver in the lay—the diameter of the tube gear lay being approximately 8 inches, then 8 $\times$ 3.14 = 24.9 inches, or one turn per 25 inches delivered. By careful observation of drawing or card sliver as it leaves the can it is visible to the eye that there is enough twist to keep the



WHAT... another machine shut down?

"And that means production stopped—workers idle—orders delayed—and manufacturing cost piling up. We've got to DO something about this Drive situation."

Thousands of plants have already solved this problem by installing Dayton Cog-Belt Drives. Their experience has proved these facts:

Dayton Cog-Belts last TWO AND THREE TIMES LONGER. That's because they're "BUILT TO BEND." Their exclusive and patented Cog construction makes them far more flexible. And they are DIE-CUT, NOT MOULDED—another exclusive Dayton feature. Being die-cut, they are accurate... fit the grooves of all standard pulleys. More than that...they STAY accurate. Their rigid cross-wise construction prevents distortion. And the die-cut sides, with fabric ends exposed, provide a leach-like grip . . . no glazed surfaces . . . no slipping and sliding and weaving. This means smoother starting and running . . . positive speed . . . less tension . . . less wear on bearings. Machines last longer.

With Dayton Cog-Belt Drives, there's practically no maintenance expense . . . no "dressing," no lubricating, no adjusting. Pulleys are smaller . . . center-to-center distances shorter. All this with less floor space, longer belt life, fewer shut-downs, greater production.

But there's much more to tell. Let us give you ALL the facts—send you a section of the Dayton Cog-Belt—tell you what Dayton Cog-Belt Drives are doing for others. It's an interesting story. Write or wire—now.

BUILT TO BEND

THE DAYTON RUBBER MFG. COMPANY
Dayton, Ohio

Factory Distributors in Principal Cities and all Westinghouse Electric and Manufacturing Company Sales Offices

Dayton
COG-BELT DRIVES

I-110

body turning to an extent. This definitely proves that the coiler head places some twist into the sliver as it passes through its tubes.

Question No. 5. "Why isn't it possible to use a 10-inch tube gear for a 12-inch can?"

It is possible if the turn tables will allow a 12-inch can to set correctly on them and rotate as it should, but it would leave a space of about two inches all around the can, and consequently would not fill the can to its full capacity.

Question No. 6. "How does changing the stripper plate of a card regulate the strippings?"

The stripper plate is the last setting point that the cotton passes under or through before being collected on the points of the doffer clothing which is running at a decidedly slower speed than that of the cylinder, and if this plate is set away it leaves the fibers in a more open and fluffy condition, so the fillet on the doffer cannot remove them as readily as if the fibers were in a more compact condition as is the case when the stripper plate is set closer.

When the doffer doesn't take these fibers off the cylinder it means that this amount will be on the points of the teeth of the cylinder clothing, as well as the amount that is added as this place passes the licker-in on the next revolution. This extra amount of fiber must be taken somewhere, and the flats being the receivers of this it goes into strips.

Question No. 7. "When adjusting the steps of spindles does it raise or lower the spindle?"

I will answer this in part with a question. Is the step raised or lowered? If either is done, the same thing is reflected by the spindle. If, however, this is mentioned in regard to the times that steps become loose and drop away from the step rail, then tightening the step will raise the spindle the slight amount that it is lowered by the falling away of the step.

Question No. 8. "What causes a traverse grinder for a card to beat at the gear end, when it is perfectly true and has been properly lubricated?"

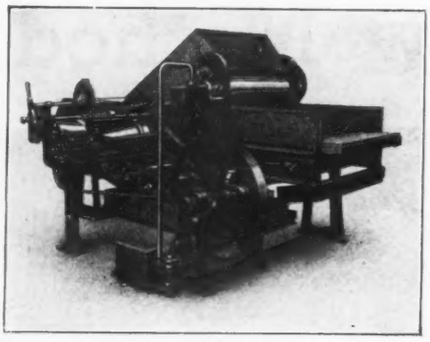
A traverse roll traverses or changes about every 47 to 60 seconds, and if you will consider a machine running 900 surface feet per minute, and with a reciprocation screw with a spring dog that must change with it, you will understand why there must be some knocking at the gear end of the traverse roll.

Question No. 9. "Is there a possibility of a coiler making a different weight of card sliver from another coiler with the same draft gear and the same weight of lap on each card? Why?"

Incessantly there is a slight variation in the weight of yards in a lap. The perfection of such a bulky machine as a picker to make perfectly even weighted laps is an impossibility, though such laps are approached to a very high degree. However, this slight variation will also give us a slight variation in our card slivers. Then, too, the setting points of a card can materially change the weight of sliver due to the mote knives taking out more fly on some leaders than on others, and the stripping plate being set to take out more strips than others.

I was employed in a mill having 256 cards running laps from a picker room that had two different type pickers (all the cards were the same), and the results

This is Hygrolit Machine, Model AAY for conditioning bobbins and quills.



AN INTERNATIONALLY RECOMMENDED YARN CONDITIONER

We also manufacture the following other Hygrolit Machines:

MODEL AZ—for setting high twist on any yarn.

MODEL BD—for conditioning cones and tubes.

MODEL W—for conditioning on the slasher.

MODEL S—for conditioning any yarns on skeins.

Special Types of

HYGROLIT LIQUIDS

are manufactured for mildew protection, setting high twist, increasing breaking strength, a long "staying in" of humidity—and improving general appearance of yarn.

These quills were stored together. The left one, conditioned with Hygrolit Solution, did not mildew. The right quill, conditioned with water alone, mildewed badly.

Apply to

HYGROLIT INCORPORATED
KEARNY, N. J.

Atkinson, Haserick & Co., 152 Congress St., Boston, Mass.
J. Alfred Lechler, 519 Johnston Bldg., Charlotte, N. C.
Belton C. Plowden, Griffin, Ga.
W. J. Westaway Co., Ltd., Hamilton, Ont., and Montreal, Que., Canada

HYGROLIT

BECCO Inaugurates New Method of Shipment . . .

. . . bringing new economy to the BECCO process

Becco Popularity Demands Tank Car Transportation

BLEACHERS of a generation ago would have said this impossible. Even four years ago when BECCO was introduced to the arts in the United States and Canada, tank car shipments seemed beyond the realm of possibility. Yet so rapid has been the spread of BECCO popularity that today the transportation of hydrogen peroxide has been revolutionized!

To meet a growing demand, the 8,000 gallon tank car shown above (carrying the equivalent of 80,000 pounds of shipper's peroxide) is now making regular deliveries of BECCO to mills of leading importance. And additional similar tank cars are at present under construction.

An idea of the economy of this new method of transportation is gained by the fact that it would take three carloads of ordinary carboys to carry an equivalent volume of peroxide.

Has your plant discovered the reasons for BECCO'S popularity, the reasons that made tank car shipments imperative?

Write for full particulars to the Buffalo Electro-Chemical Co., Buffalo, N. Y. Branches in Boston, New York, Philadelphia, Chicago, Charlotte, Toronto, Montreal.

BECCO
Electrolytic
HYDROGEN PEROXIDE

of a test made for fluctuation of weights on these cards proved very interesting. We were running the same grain sliver on all the cards, and we had a variation in weight of these of 1¾ grains. This was taken care of at the drawing frames, however.

I would like to say a word here about slow and fast carding. Fast carding isn't as advantageous as slow carding because oftentimes fast carding will cause short and cut fibers to go into the card sliver, whereas the slow method would allow this to fall out or be removed into the strips by the card flats. Breaking strength is usually better where the slow process is in use, and this method will generally be found where the mill is making tire fabric, twine, or any material where strength is the desired factor. The average per day per card will run about 75 pounds. Some mills that are on very fine counts, hosiery yarns, lace, organdies, voile and other fancies card even less than 75 pounds, some as low as 35 pounds per card per day. Slow carding will not cut the staple as fast carding will.

E. F. E. (GA.)

Foundations and Vibrations in the Textile Mill.

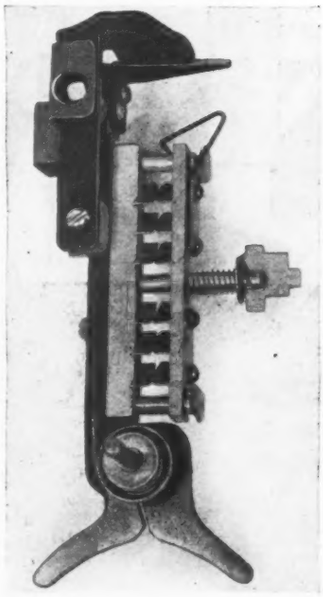
EDITOR COTTON:

There are few textile machines that do not vibrate more or less. All machines carrying high speed rotating or reciprocating parts vibrate. Perfect balancing is impossible. To counterbalance or absorb these vibrations a foundation of some kind is usually found necessary.

But foundations, too, have what is known as a "natural period of vibration". A large massive foundation of course has a lower period of vibration than a small one.

It is logical, then, that if a foundation builder should happen to put a foundation under a machine whose period of vibration is identical with the period of vibration of the foundation conditions would be made worse rather than better. The vibrations of the machine would be transmitted to the foundation and together the vibrations might become extremely violent. The period of vibration of a foundation must never be the same as that of the machine it supports. Thus machines are sometimes blamed for annoying noises and vibrations where they really are not to blame at all. Often the trouble lies in the foundation rather than the machine.

One of the most effective modern methods for eliminating vibration and noise troubles is to isolate the machine from the building or from the ground by means of a strong resilient material. Natural cork is usually specified. Cork has a natural period of vibration which is invariably different from that of any machine. It is almost perfectly elastic during a long period of years. That is, it does not gradually yield under pressure like most other materials. It does not rot, warp, or swell or shrink. From almost every viewpoint natural cork is an ideal material for machine isolation. Sometimes the cork is placed directly under the machine on top of the foundation, and at other times the foundation itself rests on the cork, depending upon conditions. Usually machinery isola-



The New and Improved Eclipse Yarn Cleaner

You are looking at a picture of the "New and Improved Eclipse Yarn Cleaner." This small and sturdy device can be attached to most "Makes" of yarn winding machines. Its purpose is to remove "Trash" from cotton yarn which the carding process failed to remove. It cleans yarn cleaner than double carding and removes imperfections caused by bad spinning.

The Eclipse Yarn Cleaner is fast becoming standard equipment in many spinning plants. It automatically *insures* any spinning plant a "Finer and Better" product by making "Dirty and Trashy" yarn clean and "Clean" yarn *cleaner*.

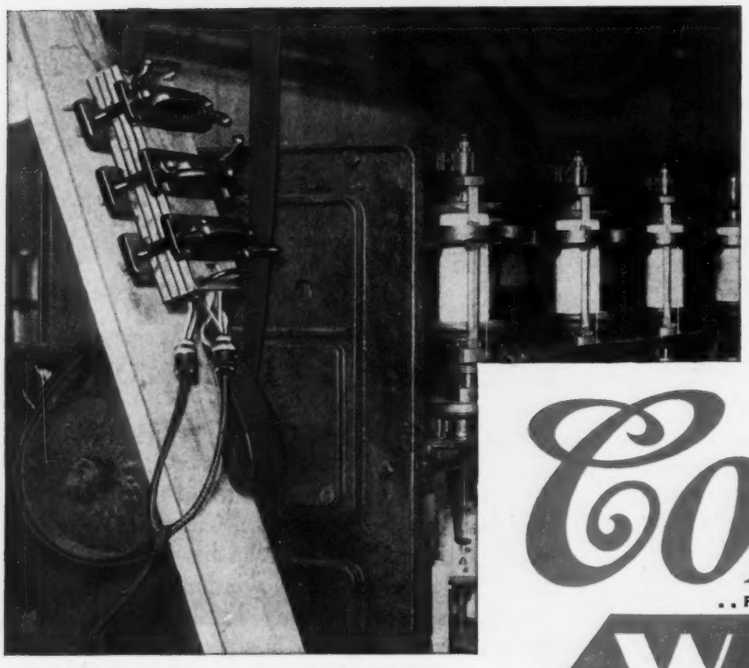
Every spinner of SALE yarn should be equipped with "The Eclipse Yarn Cleaner."

On request our representative will call and give you complete information.

ECLIPSE TEXTILE DEVICES, INC.
Elmira, N. Y.

ECLIPSE
IMPROVED
Yarn Cleaner

NEWS



Above: Typical set-up of a Condor Welder. This machine can resume production at normal speed and full load in 35 minutes.

ENDLESS-BELT USERS

Condor
.. PATENT APPLIED FOR ..
WELD

makes CONDOR BELTS endless on machine

With a Condor Weld, the two cut ends of a Condor Textyl Belt can now be interlapped, set with rubber rivets, and cured into a permanent splice. The method is unique and simple, and in no way disturbs your machine or pulleys.

Every step of the operation can be performed in 35 minutes, while the belt hangs loosely over the shafting and your mechanic does the job.

Users of endless belts are invited to try a Condor-Welded Belt—made so "on the spot." The simplicity and economy of this latest Manhattan development are truly something new!

Other CONDOR Products

V-Belt	Acid Hose	Mill Sundries
Flat Belt	Water Hose	Suction Hose
Air Hose	Fire Hose	Oilless Bearings
Cone Belt	Steam Hose	Rubber Rolls

Rubber Lined Tanks
Industrial Brake Blocks and Lining

Condor
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Executive Offices and Factories, Passaic, New Jersey

tion is a job for an isolation engineer who has had broad experience with all types of vibrating and noisy machinery.

W. F. SCHAPHORST.

Random Comments on Recent Discussions.

Card draft, cockled yarn, checking up on orders, card settings, putting in spinning top rolls, etc.

EDITOR COTTON:

Here I am again, going back over some of the past issues of COTTON and hitting here and there among the discussions and giving my ideas on some of the subjects.

First, I notice that back in the April 1931 issue, on page 561, our good friend "WASH" says: "In all my mill experience I have never heard of stretch between the lap roll and feed roll." This was in connection with his discussion of card draft with "KY (MASS.)".

I believe we—"WASH" and the rest of us—should be very careful of our statements, because of the number of young men who are studying the business and must believe most of what we tell them until they find out for themeselves. I believe "WASH" is much mistaken about draft or stretch between the lap roll and feed roll, and I am giving below the draft between the lap roll and feed roll on five different makes of cards:

Woonsocket: Lap roll gear, 52 teeth; lap roll diameter, 5.75-inch; feed roll gear, 19 teeth; feed roll diameter, 2.25-inch.

$$\text{Equation: } \frac{52 \times 2.25}{19 \times 5.75} = 1.07$$ draft between lap roll and feed roll.

Saco-Pettee: Lap roll gear, 47 teeth; lap roll diameter, 6-inch; feed roll gear, 17 teeth; feed roll diameter, 2.25-inch.

$$\text{Equation: } \frac{47 \times 2.25}{17 \times 6} = 1.03$$ draft between lap roll and feed roll.

Mason: Lap roll gear, 40 teeth; lap roll diameter, 5.5-inch; feed roll gear, 17 teeth; feed roll diameter, 2 7/16-inch.

$$\text{Equation: } \frac{40 \times 39 \times 1}{17 \quad 16 \quad 5.5} = 1.04$$ draft between lap roll and feed roll.

Whitin: Lap roll gear, 48 teeth; lap roll diameter, 6-inch; feed roll gear, 17 teeth, feed roll diameter, 2.25-inch.

$$\text{Equation: } \frac{48 \times 2.25}{17 \times 6} = 1.04$$ draft between lap roll and feed roll.

Howard & Bullough: Lap roll gear, 48; lap roll diameter, 6-inch; feed roll gear, 17 teeth; feed roll diameter, 2.25-inch

$$\text{Equation: } \frac{48 \times 2.25}{17 \times 6} = 1.04$$ draft between lap roll and feed roll.

VELVORAY

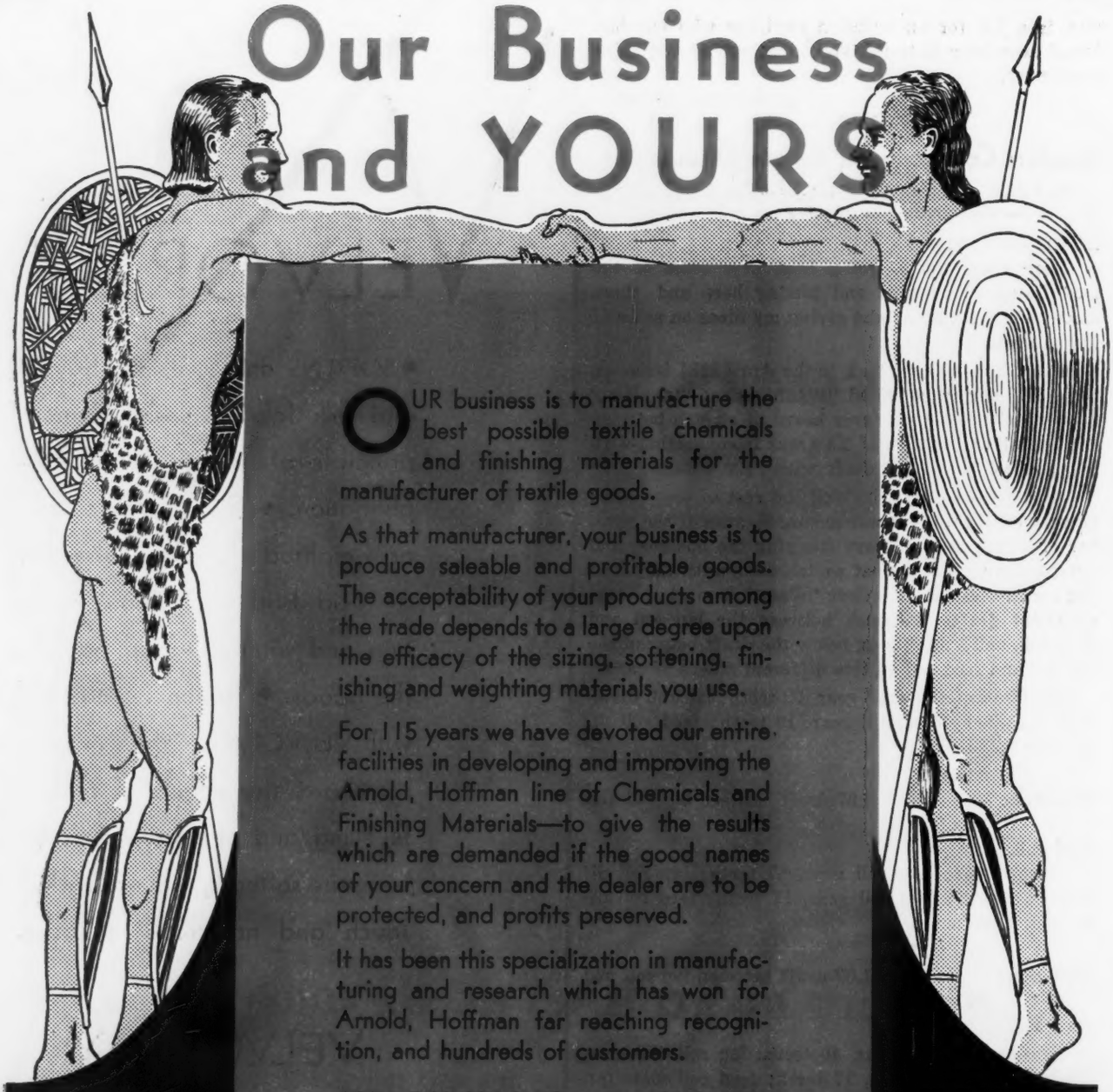
• SOFTENS and FINISHES Rayon and Silk fabrics, under a new principle of vegetable oil sulphonation. • Silks . . pure dye or weighted . . are finished in an acid bath . . without spotting and without rancid odor in the goods. • Rayon . . treated with VELVORAY in the dye bath . . shows the effects of perfect levelling and penetration . . an exquisite softness, with no "sticky" touch and no trace of odor.

VELVORAY

A working sample will show these benefits . . Send for one without cost or obligation.

ROYCE
CHEMICAL COMPANY
Manufacturing Chemists
CARLTON HILL • NEW JERSEY
New England Representatives:
Richard Haworth, Inc., 25 Fountain St., Prov., R. I.

Our Business and YOURS



OUR business is to manufacture the best possible textile chemicals and finishing materials for the manufacturer of textile goods.

As that manufacturer, your business is to produce saleable and profitable goods. The acceptability of your products among the trade depends to a large degree upon the efficacy of the sizing, softening, finishing and weighting materials you use.

For 115 years we have devoted our entire facilities in developing and improving the Arnold, Hoffman line of Chemicals and Finishing Materials—to give the results which are demanded if the good names of your concern and the dealer are to be protected, and profits preserved.

It has been this specialization in manufacturing and research which has won for Arnold, Hoffman far reaching recognition, and hundreds of customers.

JOIN FORCES WITH US NOW AND WE WILL FIGHT OUT THE ECONOMIC SITUATION TOGETHER.

ARNOLD, HOFFMAN & CO.
INCORPORATED
Providence — New York — Charlotte
Philadelphia — Boston

Established 1815

PRODUCTS
Warp Dressing
Finishing Materials
Soluble Gums
Sizing Materials
Soaps, Soluble Oils
Sulphonated Oils
Alizarine Assistant
Pigment Colors

SOLE AGENTS
for
Belle Alkali Co.,
of Belle, W. Va.

Liquid Chlorine
Bleaching Powder
Caustic Soda—
(Solid and Flaked)

I have given these calculations to show that the machine builders have all arranged their cards to give this draft, for without it there would be a slack lap running and it would eventually over-ride and go into the card double.

Card Drafts.

The following question, I believe, "KY" has answered correctly. "WASH" asks, on the same page referred to in the April issue, "Does the length of the draft on the card affect the speed of the licker-in?" "KY" answered, "I do not believe it does." Then "WASH" comes back with, "Any mill man will tell you that in the summer months with an average draft, the speed of the licker-in will lag." As the licker-in is driven by a belt from the cylinder it would be impossible for any change of speed to take place as long as the draft or bulk of the cotton has not been changed. Of course this is assuming that there is the same tension on the belt driving the licker-in.

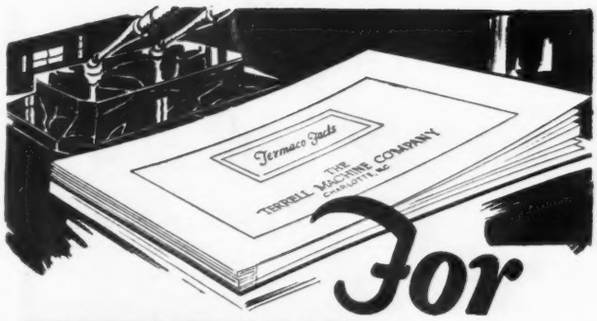
I cannot see where "KY" is wrong in his answer to another question from "WASH", "Are short drafts better on the machine preceding and succeeding the card?" The answer was, "I find short drafts better on the machine preceding and succeeding the card." Where does this answer show "WASH" that "KY" is wrong? All "WASH" says about it is, "I asked the question for the express purpose of finding out whether he understood the principle of carding machinery." To my own mind, the question does not fit in with the statement by "WASH". I wish he would explain. He has not asked about the card draft in connection with this question. I agree with him about card drafts. I am a constant reader of COTTON and I find a great many of the statements made by "WASH" do not hold good when put into practice. There may be two reasons for these statements, either he may not know his work thoroughly, or he may be making these statements to draw out the other fellow. Let us hope that the latter is the reason.

Cockled Yarn.

Still referring to the April issue, I find on page 559 the questions of "CONTRIBUTOR No. 4990" about cockled yarn. He wants to know first, "What actually takes place when cockled yarn is made on a spinning frame?" Well, when the rolls are too close for the length of staple the front roll and middle roll are acting upon the fiber at the same time. The front roll running faster is trying to draw the fiber forward and the middle roll is holding it back. When the fiber leaves the bite of the middle roll the tension upon it causes it to jump forward and curl up—the same as when you draw out an elastic and then let one end go.

He next asks, "Why the little soft lump, without twist, and which will strike out when the least bit of tension is applied to the thread?" After this lump forms it passes through the front rolls and as this diameter is so much greater than the rest of the yarn, no twist is inserted at this point. When this is pulled out it will be noticed that there is very little strength at this point.

Cockled yarn may be caused by too slow a spindle



For TEXTILE EXECUTIVES • Only

If you have not already sent for a copy of "TERMACO FACTS," write for this interesting loose-leaf booklet today.

It contains reports from representative mills, cleaning daily from 8,000 to 200,000 bobbins with Termaco roving bobbin cleaners, and gives definite facts regarding the savings and other advantages resulting from Termaco cleaning.

For instance, Riverside and Dan River Cotton Mills reports such facts as:

(1) More than 33,000 bobbins cleaned per Termaco per day.

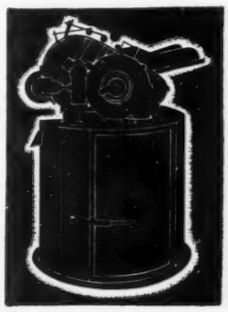
(2) Less roving waste.

(3) No reworking of waste is necessary after it leaves the Termaco.

(4) Eliminates chances of cutting bobbins.

(5) Improves conditions of bobbins previously cut.

(6) Gives spinners more time to spin.



With mills seeking every practical means of reducing production costs, mill executives will find "TERMACO FACTS" of particular interest. It will be sent entirely without obligation.

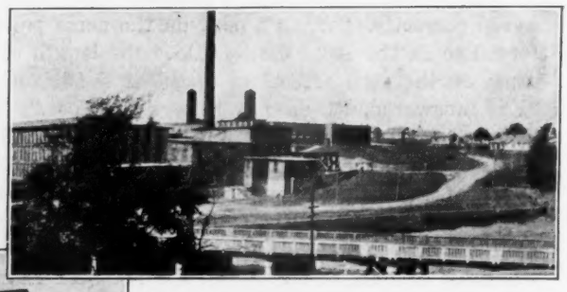
THE TERRELL MACHINE CO·INC
CHARLOTTE·N·C·

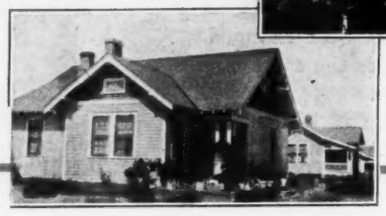
General Supply Co., Danielson, Conn., Representatives for N. Y., N. J., Pa., New England States and Canada.

SHERWIN-WILLIAMS STANDARD PRODUCTS for every Mill and Mill Village Surface . . .

Listed and briefly described here are some of the products which form the Sherwin-Williams Standardization Plant Upkeep Plan, for textile mills and villages. This Standardization Plan has saved thousands of dollars for textile mill owners. Complete details about it will be furnished without obligation, upon request. Write the Sherwin-Williams Company, Dep't. 729, Cleveland, Ohio.

NOTE: Textile offices at Philadelphia, Charlotte, Spartanburg and Atlanta. Our warehouses at Charlotte and Spartanburg carry stock for prompt service and convenience of the textile trade.





Village and mill of Whitney Manufacturing Co., Spartanburg. Village finished with S-W Mill Village colors.

S-W SAVE-LITE FINISHES

SAVE-LITE MILL WHITE: A perfect Mill White Finish for interior walls, ceilings and woodwork. Furnished in High Gloss Eg-Shel and Flat.

SAVE-LITE FUME RESISTING WHITE: Especially resistant to chemical and acid fumes. Furnished in Enamel, Semi-Flat and Flat finishes.

SAVE-LITE MOISTURE RESISTING WHITE: Made to resist high humidity and excessive moisture. This finish furnished in Flat only.

SAVE-LITE WEAVE ROOM ENAMEL: An enamel paint especially made to resist mildew growth prevalent in weave rooms.

MILL VILLAGE PAINT: A high quality exterior finish for mills and mill villages. Unusual covering capacity and long life.

VELVET ENAMEL: An ideal flat white wall finish possessing a subdued sheen that gives a most attractive interior finish for cottages.

Listen in on Sherwin-Williams daytime program "Keeping Up With Daughter" over NBC network—every Wednesday at 11 A.M. (E.S.T.) On Pacific Coast at 10 A.M. (P.S.T.).

S-W METAL PROTECTIVE PAINTS

KROMIK STEEL PRIMER: Unsurpassed as a metal primer for metal work of all kinds that is to be exposed to weather or moisture. Costs less than red lead. Works easier. Costs less to apply.

METALASTIC: Highest quality metal protective paint with excellent covering capacity—approximately 800 square feet on structural steel. Unequalled for preventing rust. Yields readily to expansion and contraction.

S-W STANDARD ROOF PAINTS AND CEMENTS:

EBONOL: An excellent black paint for exterior work. Acid-free; very durable; highly recommended for use on prepared "rubber" roofing, metal and skylights, flashing and down-spouts. Will not run or dry out under extreme hot rays of sun. Sets in 24 hours.

QUICK DRYING EBONOL: Similar to Ebonol except not quite so heavy bodied. Sets in about 8 hours.

ELASTIC ROOF CEMENT: Is an effective combination of pitches, oils and long asbestos fibre. Furnished in black, red or green. Recommended for patching large holes, joining and relining gutters, eaves, down-spouts, drain pipes, valleys, skylights, etc. Will stand extreme temperatures without cracking.

LIQUID ROOF CEMENT: A combination of pitches, oils and long asbestos fibre recommended for repairing different types of roofs, including tar, gravel, concrete, slag, slate, tin, galvanized iron, etc. Furnished in black, red or green.

S-W STANDARD DISINFECTANTS

OYLAPINE: Odor of Southern pine. For use where disinfectant with pleasant odor is needed.

PHENOLENE: Standard coal tar dip with carbolic acid coefficient. For floors, drains, lavatories, etc.

S-W DISINFECTANT: A coal tar disinfectant two to three times more powerful than carbolic acid. For general use.

S-W LIQUOR CRESOLIS COMPOSITUS U.S.P.: For use principally in hospitals and by physicians for washing wounds and sterilizing instruments. Made according to the specifications outlined in United States Pharmacopoeia.

CRESOLEX: A commercial substitute for Liquor Compositus, U.S.P.

S-W PINE-OIL CLOSET CHEMICAL: An effective germicide with a pleasant odor.

S-W CLOSET CHEMICAL: Coal tar disinfectant with powerful deodorizing and disinfectant properties.

CLIP AND FILE THIS AD FOR THE TIME WHEN YOU WILL NEED ITS INFORMATION IN A HURRY.

SHERWIN-WILLIAMS

STANDARD PRODUCTS FOR TEXTILE MILLS AND VILLAGES

speed, even with the rolls set properly.

Checking Up on Orders.

There was some interesting discussion in February, April, May, June and August COTTON, by "J. R. (GA)", "CONTRIBUTOR No. 4022", and "JACK (TEXAS)". It was asked, "Should you check up on instructions given?" My answer is yes, and then some. Right down from the highest official to the lowest. You are not showing lack of confidence in any man when you check up to see if orders are carried out correctly. Of course the method of checking up differs with different men, and the best one is the one used with diplomacy. How often do we miss fire ourselves on something we know thoroughly, yet, instead of being sure we take things for granted! If you are in authority, how do you know that orders have been carried out unless you have some way of checking up? If you do not check up then you are not on your job. How can you properly answer to those above you when they want to know?

Worn Card Flats.

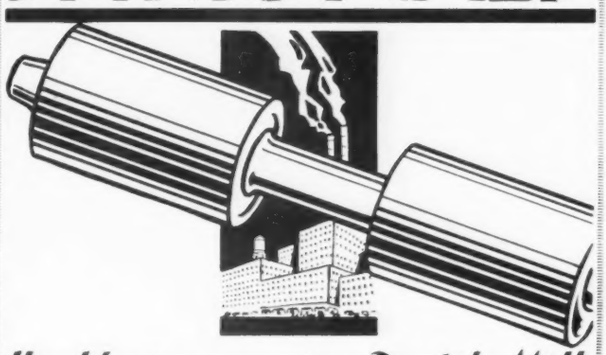
In the May issue, on page 671, "CONTRIBUTOR No. 4838" asks five questions about cards which I shall attempt to answer.

"1. Why is it that all cards cannot be set alike, and to the same gauge from flats to cylinder?" One reason is that some cards have more vibration than others, due to where they are placed; some cards are over the beams and here the flooring vibrates less than between the beams. Another is that all parts do not wear alike. Another, some cards are ground heavier than others, some heavier on one side than the other. These conditions exist everywhere and cannot be avoided. There is one thing noticeable: where cards are on the ground floor, better settings can be obtained.

"2. Why is it that after cards have been ground for 10 to 15 years, there are high and low flats? That is, when the low flats are set to the proper gauge to card the cotton, the high flats rub and face; when the high flats are set properly, the low flats are so far away that they will not card properly." I have mentioned in answer to the previous question that all parts do not wear alike. Each end of the flat has a surface which passes over the flexible bend at least once every hour. This slow motion will wear the ends of the flats as well as the flexible bend. Some parts of the castings are harder than others and do not wear the same. This wearing causes the wire to set closer to the cylinder and is what we call high wire. The question will be asked, why the grinding arrangement will not offset this. If the end of the flat wears evenly the arrangement will allow the wire when grinding to be in its correct position in relation to the grinding wheel and will be ground true, but when the end wears unevenly the true relation is not possible, and the wire is ground unevenly. This causes trouble, when setting.

"3. What causes high flats and what can be done to make them uniform so that they can all be set to the proper gauge?" My answer to the second question covers this partly. I have seen conditions where it was

SPINNA CALF

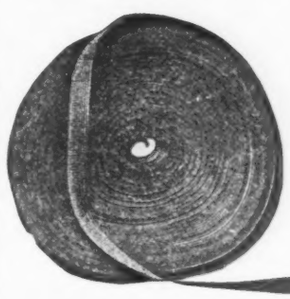


Used by progressive Textile Mills

For increasing efficiency of top rolls, in regard to better spinning results and long life.
Obtainable in two tannages—Bark and Mineral.

A.C.LAWRENCE LEATHER CO.
204 W. McBEE AVE. GREENVILLE, S. C.
SAWYER STREET PEABODY, MASS.

DRONSFIELD'S PATENT
"ATLAS BRAND"
EMERY FILLETING
"The New Flexible" "Needs no 'Damping'"
Stocks in Boston, Mass., and the South
TRADE MARK ATLAS
The Standard Card-Grinding Medium
GUARANTEED "A" QUALITY
THE ONLY QUALITY WE MAKE
Used the wide world over, like
The DRONSFIELD CARD-GRINDERS



Stocked by the
Principal
Mill Supply Houses
Sole Agents for Dronsfield's Machinery for U. S. A.:—
John Hetherington & Sons, Inc.
250 Devonshire St.
Boston, Mass.

Why ATWOOD Leads—

1. Experience . . .

Atwood has built quality throwing machinery exclusively for nearly one hundred years.

2. Stability . . .

Today and 50 years hence owners of Atwood machines can depend on Atwood to maintain its high standards of quality and service.

3. Aim . . .

The building of quality throwing machinery of sound, advanced design.

4. Policy . . .

Atwood stands squarely back of its products.

Result . . .

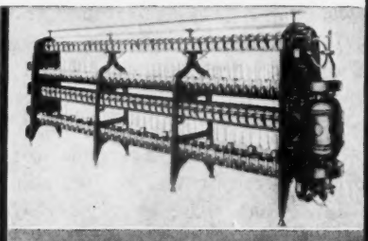
Atwood machines throw the bulk of the silk and rayon used in the United States.

1852-1932

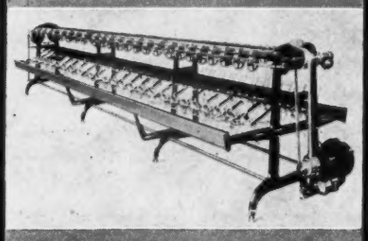
The original Atwood plant —1852

The Atwood plant today

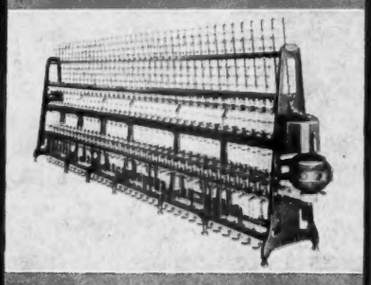
3 ATWOOD Leaders



"Monarch" Twister—double deck



"Stonington" Winder—single deck



The world-famous 5B Doubler-Twister

ATWOOD

THE ATWOOD MACHINE COMPANY

FOUNDED 1852

STONINGTON, CONN., U. S. A.

Sales Offices: New York, N. Y. Wilkes Barre, Pa. Stonington, Conn. Charlotte, N. C. Los Angeles, Calif.

ATWOOD MACHINES THROW THE BULK OF AMERICA'S SILK AND RAYON

1535

not possible to set flats evenly on the same card and it was found after careful investigation that the flat grinding arrangement was not true and in some cases did not hold the flat correctly, this causing the flats to be ground differently.

"4. How often should a card be ground, running 1⅛-inch cotton?" The different grades of cotton will have some bearing on this as lower grade cotton containing so many more impurities will cause the wire to become dull quicker. I may say that once every six weeks will be often enough and another man may say every four weeks and both of us be right. If I am carding very slowly, putting 300 pounds through each week, and the other carder is putting through 500 pounds or 600 pounds in the same time, naturally his cards need grinding oftener than mine. I believe this needs close observation to determine. The point to be kept in mind is to grind them often enough to keep a good edge on at all times.

"5. Is 1⅛-inch cotton harder to card than ⅞-inch, and why?" The longer cotton is the easier to card, because the shorter fibers have a greater tendency to stay in the flats. The action of the flats and cylinder is to comb out the fibers and leave the short fibers in the flats. The shorter these fibers are to start with, the more they will stick to the flats.

Correct Way of Putting in Top Rolls.

I read in the May, June and August issues several letters as to whether it is proper to put in top rolls with the point of the lap following or leading. I remember when I was a young fellow I was helping to scour frames one day, and when we were about to put in the top rolls, the superintendent came along and was watching. I, being green, simply put the roll in the cap bars irrespective of the lap. The superintendent came to me and asked if I had been told how to put in top rolls. My answer being no, he took a roll and showed me the mark under the lap and explained that this mark should always be under the lap when you face the roll. He went on to explain how the lap would be lifted by contact with the steel roll if put in the other way. Since then I have watched this and found he was correct. In talking with the roller coverers they have told me that they started to put the marks on the cots after finding that there was only one proper way to put the roll in.

Says Traveler and Spindle Co-operate.

There is only one solution to the question of which puts in the twist, the traveler or the spindle? The traveler going around the ring puts in the twist. We know the spindle must turn, and in doing so, exerts a pull on the traveler and causes it to run around the ring, but the yarn after receiving twist must be wound on the bobbin. If the traveler were making as many revolutions as the spindle this yarn could not be wound. This shows that the actual twist is between the traveler and front roll. But we must never forget that the traveler and spindle must work together to perform the twisting and winding. In other words, they do what we should all do: co-operate.

CARDER (MASS.)

THE AKRON BELTING CO. ESTABLISHED "AKRON" 1885 AKRON, OHIO, U.S.A.

This Brand
has meant First Quality
LEATHER BELTING
to two generations of
SOUTHERN TEXTILE EXECUTIVES

Your orders are solicited.
Our guarantee protects your purchase.
We Ship Quick!

The Akron Belting Company
Akron, Ohio

Direct Sales Representatives:

L. L. HASKINS
P. O. Box No. 241
Greenville, S. C.

L. F. MOORE
P. O. Box 1293
Memphis, Tenn.

Stop Oil Rot of Card Clothing

Caused by ordinary oil creeping out of main bearing and working its way along the shaft, finally reaching the edges of the card clothing—where it quickly spreads through and rots the clothing.

NON-FLUID OIL overcomes this common cause of damage to card clothing and gives you much cleaner, more dependable and economical lubrication because:

1—It *"stays put"* where applied.

2—It does not drip, leak, creep or spatter.

3—It outlasts liquid oil from 3 to 5 times.

Write today for free *testing sample and bulletin, "Lubrication of Textile Machinery."*

New York & New Jersey Lubricant Co.
MAIN OFFICE: 292 Madison Ave., New York, N. Y.

Southern Agent, L. W. Thomason, Charlotte, N. C.

WAREHOUSES:

Chicago, Ill. — Providence, R. I. — Atlanta, Ga.
St. Louis, Mo. — Detroit, Mich. — Charlotte, N. C.
New Orleans, La. — Spartanburg, S. C. — Greenville, S. C.

TRADE MARK REGISTERED
NON-FLUID OIL
IN U.S. PAT. OFFICE & FOREIGN COUNTRIES

MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month

Making Ends Meet

and then some—Profit

Investigate paying installations

Veeder-Root INCORPORATED
HARTFORD, CONN.

ORIGINAL and GENUINE
"The Leather with the Hair on"
Bondaron
REG. U.S. PAT. OFF

Lug Straps
Welcome Comparison

Bondaron Lug Straps, sturdily built for long life and continuous performance, are easy on the picker stick and the shuttle.

They cushion the impact to such an extent that savings are very noticeable in both picker stick and lug strap costs.

Bondaron Lug Straps will outlast other straps from 2 to 6 times. They are doing it in many mills and will in yours.

There is only one sure way to prove these strong statements — TRY THEM. Comparison is ever welcome as is correspondence leading to such a test.

Manufactured exclusively by

CHARLES Bond COMPANY

617-623 Arch Street, Philadelphia, Pa.

Leather Curriers and Manufacturers of Textile Leathers and Belting

Proper Bore of Trumpets.

A compilation of useful information on this subject which will be worthwhile in your files for reference.

WE RECENTLY had a request made of us for a rule for obtaining the proper bore of trumpets for different grain slivers for cards and drawing frames. We submitted this question to several of our friends and the answers received from them were of such a nature that we felt that the publishing of them might prove of interest to several of our readers.

One of the replies received from a machinery manufacturer read, "We wish to advise that on the card, the hole in the trumpet plate where the cotton is received from the doffer is 7/32-inch in diameter, and in the trumpet on the top of the coiler the hole is 3/16-inch in diameter. These holes are standard and we would not vary them without specific directions from a mill when ordering new cards.

"On drawing frames, the following is a list of the various size holes in the trumpets as compiled and tested out by William Smith, principal of the New Bedford Textile School. We understand that the cotton used was 1-inch staple and these dimensions that follow are close enough for practical purposes on ordinary mill work. There, might, perhaps, be local conditions at some mills where this table might not exactly fit conditions, and we have in mind, long staple cotton of a silky grade. Mr. Smith has found it advisable to have a straight hole on the end of the trumpet nearest the calender rolls instead of using a taper reamer that has been used by mills for many years.

"The following is the table previously referred to:

	Hole Size in Thousandths	No. of Drill	Grain Sliver
Size No. 0	.100	39	35-40
" " 1	.110	35	40-45
" " 2	.125	30	45-55
" " 3	.135	29	55-60
" " 4	.145	27	60-65
" " 5	.160	20	65-70
" " 6	.175	16	70-80
" " 7	.190	12	80-100

"In sending out trumpets for repairs where we do not know the grain sliver the mill is running we drill a straight hole 3/32-inch in diameter, which is .0937 inch. We then leave it to the mill to make the hole of the diameter to meet their requirements.

"Mr. Smith, for school purposes, has numbered his trumpets, thereby enabling the students to work by numbers instead of dimensions."

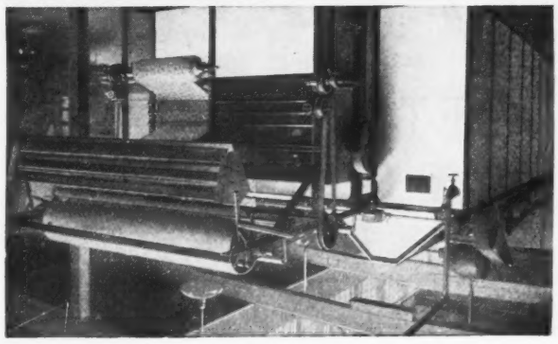
Another machinery builder advised us that the trumpets on all their card coilers are stripped out with a 5/32-inch hole in them, from a 40-grain to a 75-grain sliver. He also said that the diameter of the trumpet hole in thousandths could be obtained by multiplying the weight of the sliver in grain per yard by 1.80. Example,

52-grain $\times$ 1.80 = 93/1000 or 3/32-inch for small end of trumpet.

If this rule is followed for cards, 1 to 1½/32 and sometimes 2/32 is added.

This contributor advised that for a 50 to 60-grain sliver the size of the hole in the card calender trumpet plate would be 5/32-inch, and in the coiler top would be 3/16-inch.

MODERN EQUIPMENT
Indispensable to Profitable Production



"HURRICANE" AUTOMATIC LOOP DRYER

FOR materials that benefit by air drying at *moderate temperatures* and *without tension*, the "Hurricane" Loop Dryer is unexcelled. As the cloth passes through the machine loosely festooned over the poles of a conveyor, it is *uniformly* dried by currents of warm air.

VACUUM EXTRACTORS

For operating in range with dryers, scutchers, quetsches or other equipment, or wherever it is desired to remove excess moisture uniformly and thoroughly from goods in open width, eliminating creases and folds.

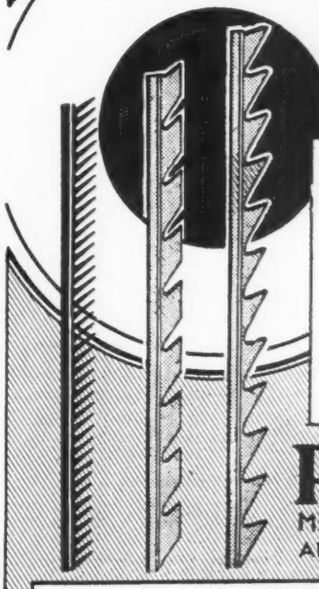
RAW STOCK DRYERS

Greater Capacity, with Less Steam and Power

(192-A)

THE PHILADELPHIA DRYING MACHINERY CO.
3351 Stokley Street, Philadelphia, Pa.
DRYERS for ALL Textiles from Raw Stock to Finished Fabrics

Deliver More Sliver in Less Time



The use of Platt's Metallic Card Clothing for the carding of cotton is fully justifiable in the fact that it delivers from 1% to 3½% more sliver in LESS TIME.

Write for information.

PLATT'S
METALLIC CARD CLOTHING
AND SERRATED WIRES

PLATT FRERES,
BOULEVARD DE LYON, ROUBAIX, FRANCE
Platt's Metallic Card Clothing Co.
P. O. BOX 407, LEXINGTON, N. C.
J. W. & H. Platt, Byron Works, Bouverie Rd., Harrow, England
Other Continental Branches in ROUEN, GHENT, BALE, MULHOUSE, BARCELONA, TORINO, etc.

Philadelphia *Felt Cloths*

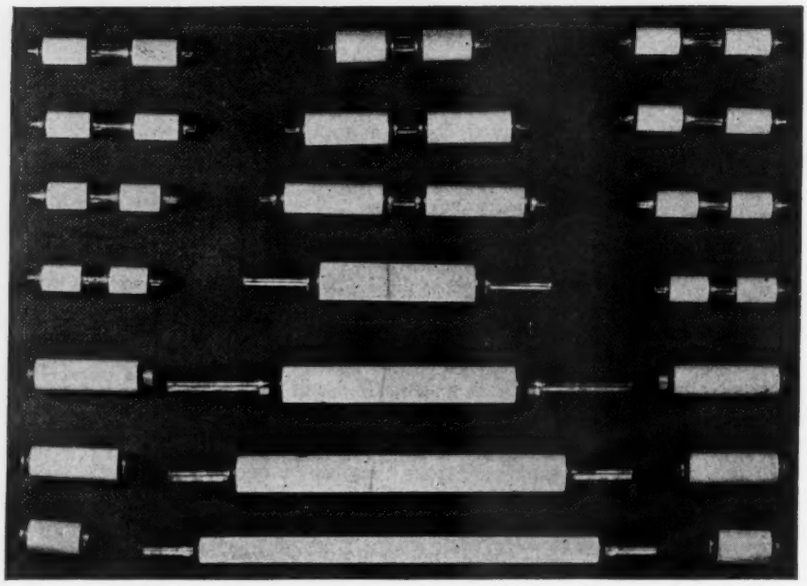
PROVEN IN SERVICE

DETAILS THAT COUNT

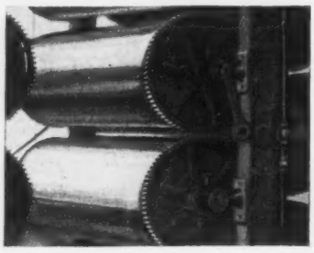
Because Philadelphia Felts are made from the finest of raw materials . . . because they are manufactured under the best of conditions, as to experience, men and machinery . . . because they are rigidly inspected—you are assured of getting the utmost in felt cloths when you specify Philadelphia.

Philadelphia specializes in Stamping Blankets, Palmer Blankets for Sanforizing and Lapping Cloth for Printing.

Our Southern Sales Manager, Clarence B. Seal, will gladly assist you on felt cloth problems. Address inquiries to Philadelphia.



PHILADELPHIA FELT COMPANY
FRANKFORD, PHILADELPHIA, PA.



THE COMPLETE SERVICE YOU'VE BEEN LOOKING FOR

Drying cans now repaired or rebuilt here in the South. Old shells repaired, or new shells furnished promptly at a considerable saving to your mills. Why not write in for information?

GASTONIA TEXTILE SHEET METAL WORKS
222 E. LONG ST. GASTONIA, N. C.

Manufacturers and Rebuilders of Drying Cans, Card Screens and Spinning Cylinders.

Repair Service on
STEEL ROLLS—SPINDLES—FLYERS

A Service of Economy - -

Because the nearness of our plant to you means low freight rates, because the work turned out by us is of lasting quality, because it eliminates the cost of new units—this Gastonia service is the last word in economy. Write for quotations.

GASTONIA ROLLER, FLYER & SPINDLE CO.
GASTONIA, N. C.

THEY STAND THE TEST!

Gastonia Brushes combine high quality and a record of long and satisfactory service . . . . No wonder they continue to be the favorite of mill hand and superintendent alike.

We also repair rolls using only the best of materials.

GASTONIA BRUSH CO., GASTONIA, N. C.

GASTONIA BRUSHES

No. 48

BARKLEY MACHINE WORKS

MANUFACTURERS OF TEXTILE MACHINERY PARTS

Cut Gears—Cast Tooth Gears

Parts for Kitson Pickers, Nasmith Combers, Whitin Combers. General Textile Repairs.

GASTONIA, NORTH CAROLINA

PATENTS

PAUL B. EATON
Registered Patent Attorney, 1408-C, Johnston Bldg.
CHARLOTTE, NORTH CAROLINA
A former member of the Examining Corps
United States Patent Office
WASHINGTON OFFICE: 941 MUNSEY BLDG.

Another contributor wrote, "sometime ago we sent out questionnaires to a large number of mills and asked them to give us the information as to the weight of sliver, size of the trumpet hole, type of cotton used, etc. When the questionnaires were received this information was tabulated, and we made up a list of sizes of drilled holes in the trumpets for different weights of sliver. Even with all of this information, the following table is only approximately correct as an allowance should be made for the quality of cotton and the conditions under which it is worked." The table follows:

Approximate Size of Hole in Trumpet and Number of Drill to Use for Different Weight of Sliver

Card		
40 gr. sliver	.140-inch dia. hole	No. 27 drill
45 gr. sliver	.150-inch dia. hole	No. 25 drill
50 gr. sliver	.160-inch dia. hole	No. 21 drill
55 gr. sliver	.167-inch dia. hole	No. 19 drill
60 gr. sliver	.175-inch dia. hole	No. 16 drill
65 gr. sliver	.182-inch dia. hole	No. 14 drill
70 gr. sliver	.190-inch dia. hole	No. 12 drill
75 gr. sliver	.195-inch dia. hole	No. 9 drill
80 gr. sliver	.205-inch dia. hole	No. 6 drill
Evener Drawing.		
40 gr. sliver	.120-inch dia. hole	No. 31 drill
45 gr. sliver	.130-inch dia. hole	No. 30 drill
50 gr. sliver	.138-inch dia. hole	No. 29 drill
55 gr. sliver	.145-inch dia. hole	No. 27 drill
60 gr. sliver	.150-inch dia. hole	No. 25 drill
65 gr. sliver	.158-inch dia. hole	No. 22 drill
70 gr. sliver	.160-inch dia. hole	No. 20 drill
75 gr. sliver	.170-inch dia. hole	No. 18 drill
80 gr. sliver	.175-inch dia. hole	No. 16 drill
Drawing.		
40 gr. sliver	.113-inch dia. hole	No. 33 drill
45 gr. sliver	.120-inch dia. hole	No. 31 drill
50 gr. sliver	.125-inch dia. hole	No. 30 drill
55 gr. sliver	.132-inch dia. hole	No. 29 drill
60 gr. sliver	.140-inch dia. hole	No. 28 drill
65 gr. sliver	.145-inch dia. hole	No. 27 drill
70 gr. sliver	.150-inch dia. hole	No. 25 drill
75 gr. sliver	.155-inch dia. hole	No. 23 drill
80 gr. sliver	.160-inch dia. hole	No. 20 drill

"The Fallacy of Cutting Prices."

Schaphorst agrees with article in our September issue and cites an illustration in another field.

EDITOR COTTON:

The excellent article by Dunhill Marsden in the September issue on "The Fallacy of Cutting Prices" causes me to believe that the following true incident will be of interest to readers of COTTON.

A good friend of mine who builds what I believe the best and most durable boiler baffle wall i nthe world, tells me that one year ago he quoted on his type of baffle wall for a water tube boiler of nearly 700 hp. The prospect thought that the price was too high and so installed a baffle wall that was much cheaper. He thought that all baffles were more or less alike and that there was no such thing as quality in baffle walls. But my friend now learns that the baffles are practically gone and he has been asked for another quotation. The prospect is broad-gauged enough to admit that he made a big mistake. He originally thought he was saving a few dollars but in addition to having to pay twice for the job there is no question but that much additional money was wasted in increased fuel consumption and loss of boiler efficiency. It certainly does not pay always to buy on price as this incident readily proves and as so ably stated by Dunhill Marsden.

W. F. SCHAPHORST.

We keep up our quality standards . . . and keep down your costs

FIRST QUALITY in Rockweave products means longer service for you. That cuts down operating costs and increases your profits.

Further than that, we are careful to maintain a *consistently fine standard* in the manufacture of our products. So, whenever you're buying baskets, hampers and trucks or any other textile needs, you can always be sure of the same reliable service with Rockweave.

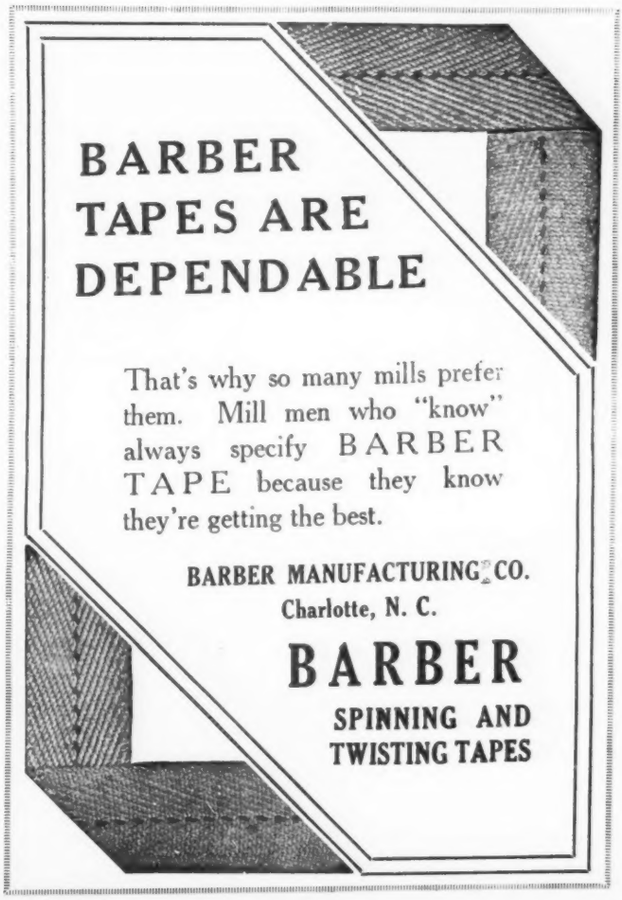
Let us send you full information about all Rockweave canvas products, and the new services now available to you. Special and standard sizes supplied promptly, of the products listed below.

CALLAWAY MILLS, INC.

345 MADISON AVENUE, NEW YORK CITY

RAY T. JOHNSON, *representing* Callaway Mills, Inc., 323 S. Franklin St., Chicago
M. R. ABBOTT, *representing* Callaway Mills, Inc., 110 Summer St., Boston, Mass.

OBLONG & SQUARE BASKETS
ROUND TOP—SQUARE BOTTOM BASKETS
STEAMING BASKETS & DOFF BOXES
ROVING TRUCKS
KNITTING & HOSIERY MILL TRUCKS
HIGH STAND BASKETS & TRUCKS
REMOVABLE BODY BASKETS AND TRUCKS


BARBER
TAPES ARE
DEPENDABLE
That's why so many mills prefer them. Mill men who "know" always specify BARBER TAPE because they know they're getting the best.
BARBER MANUFACTURING CO.
Charlotte, N. C.
BARBER
SPINNING AND
TWISTING TAPES

TEXTILE BOOKLETS *Worth Writing For!*

The booklets or catalogs briefly mentioned below may be obtained by any reader of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

1. **Cotton Picking, Carding and Spinning**—Covered by three different catalogs. Picking catalog covers Opening and Picking Machinery; Card Room catalog covers Cards, Combers and Roving Frames; Yarn Machinery catalog covers Spinning, Twisting, Spooling, Quilling and Reeling By Whitin Machine Works, Whitinsville, Mass.

2. **Pepperell Equipment**—10 page illustrated booklet, showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments. Installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

4. **New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor**—Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

8. **"Textile Brushes"**—10 page booklet illustrating brushes for cleaning every part of mill. By Gastonia Brush Co., Gastonia, N. C.

10. **Leathers, Textile**—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. **Whitinsville Rings**—16 page illustrated booklet. Describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

12-A—**Instruction Manual for Type K Bobbin Cleaner.** Also **Instruction Manual for Witman Bobbin Cleaner**—two separate booklets describing adjustments of machines outlined, and also describing effect of bobbin shapes upon the cleaning process. These booklets intended for users of machines outlined. Applicants should designate which booklet is desired. By the Terrell Machine Company, Charlotte, N. C.

12-B—**Instruction Manual for the Termaco Roving Bobbin Cleaner**—booklet in four sections on adjustment of machine; on how to use machine to best advantage in reducing waste and saving labor; parts catalog; description of new attachments which can be applied to earlier models of the machine. By the Terrell Machine Company, Charlotte, N. C.

13-A—**Equipping Modern Textile Plants**—Booklet, 35 pages, illustrated. Describes value of Monel Metal equipment in textile plants and presents reports from mill owners and operators on actual experiences; equipment, descriptions, etc. Also Dyed in the Truth—Reprints of advertisements of special interest to textile dyers. International Nickel Company, Inc., 67 Wall Street, New York, N. Y.

15. **The Powers System of Thermostatic Control**—"Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

17. **Arcy**—12 page booklet on getting most value from starch in warp sizing and cloth finishing. By Drake Corporation, Norfolk, Va.

18. **Popular Industrial Chemistry**—162-page handbook for dyers, chemists, finishers, purchasing agents. By Kali Manufacturing Company, 1404 No. Front St., Philadelphia, Pa.

19. **Quaker City Chemical Co.**—48-page booklet containing useful information, tables, formulae, on dyeing, bleaching and finishing all textiles. Issued by above company, 2736 North Broad St., Philadelphia, Pa.

20. **Bleaching, Dyeing, Finishing and Printing Textile Goods**—70-page booklet containing interesting information on faults and methods in finishing goods, useful tables and definitions. By Bosson & Lane, Atlantic, Mass.

21. **Warp Sizing and Composition of Cotton**—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Wooley Co, 748 Rice St., Atlanta, Ga.

22. **Tragasol and Its Uses**—Booklet, 60 pages, constituents and properties—Dissolving and preparation—sizing and dressing of yarns—cloth finishing—miscellaneous. By John P. Marston Co., 247 Atlantic Ave., Boston, Mass.

23. **Practice of Rayon Sizing in American Mills, Raygomm, Lakoe Gum**—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

25—**"Lupogum" and "Monopole Oil"**—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

27. **The Seven Factors of Belting Economy**—Booklet, 112 pages, illustrated, containing authoritative information on the economical layout, care and operation of belt drives. Chas. A. Schieren Company, 88 Ferry Street, New York City.

28. **Akron Belting.**—Practical rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. **Continuous Card Stripper**—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. **Lubrication of Textile Machinery**—82 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

31. **Canvas Baskets and Trucks**—Doff boxes, trucks and for all textile uses. By Rockweave Mills, LaGrange, Ga.

38. **Sleaziness in Full Fashioned Knitting**—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machine with general information on subject of full fashioned knitting.)

41. **Budget Control**—40-page booklet showing how each part of business budget should be prepared and principles of its effective operation together with a summary of benefits. By Ernst & Ernst, accountants, 27 Cedar Street, New York, N. Y. (This company also has available booklets on **Standard Costs, Business Control Through Analysis, The Better Wage, Factors to Consider in Working Out Mergers.**)

42. **Textiles and the Telephone Typewriter**—6 page booklet on telephone typewriter service for communication between mills and selling houses. By American Tel and Tel. Co., Long Lines Department, Atlanta, Ga.

44. **Points of Interest in and Around Atlanta**—36 pages. Illustrated, describing places of scenic and historic interest in Atlanta in particular, and the Southeast in general. Atlanta Biltmore Hotel, West Peachtree, Fifth, Sixth & Cypress Sts., Atlanta, Ga.

45. **Fidelity Universal Ribbers**—A forty-eight page booklet showing the advantages and many styles of ribbed fabric and describing in detail and illustrating the latest developments in ribbers. Sent free on request by Fidelity Machine Co., 3908 Frankford Ave., Philadelphia, Pa.

46. **Mundet's New Black Book**—Including specifications for the installation of cork-pipe covering under various conditions, telling how thick the insulation should be, listing the sundries that are needed with cork pipe covering—showing what to do when pipes are close together, explaining how to order, prices, etc. Copy sent free to anyone interested in cork pipe insulation. L. Mundet and Son, Inc., 450—Seventh Ave., New York, N. Y.

50. **The Effect of Belt Tension on the Cost of Belting**—a 12-page booklet, giving a non-technical explanation of belt tensions, the coefficient of friction of various kinds of belts, the effect of belt tension on belt costs, and the proper care of belting to assure long life and low costs. Sent free on request. Chas. A. Schieren Co., 80 Ferry St., New York, N. Y.

52. **The Lincoln Twin Disc Floor Machine**—showing the many advantages of clean, sanitary floors, the saving of time and labor through using floor cleaning machines and describing in detail the various models of Lincoln floor machines. Lincoln-Schluster Floor Machinery Co., 213 W. Grand Ave., Chicago, Ill.

54. **Shipper's Handy Helper**—A forty-eight page booklet giving valuable information on shipping problems, including suggestions on packing, marking, numbering and invoicing shipments and describing the principal items generally used in shipping departments. Southern Shippers Supply Co., 118 Courtland St., S.E., Atlanta, Ga.

55. **Interpretation of Analysis for the Layman**—An eight page booklet explaining what the various terms used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

56. **Technical Service Data**—giving information on processes of textile manufacture in the use of oils, softeners, etc. National Oil Products Co., Harrison, N. J.

57. **Reducing Textile Costs and Troubles** telling all about the benefits of water treatment. Permutit Co., 440 Fourth Ave., New York, N. Y.

61. **Belt User's Book**—76-page book with suggestions, rules, tables and charts helpful in the purchasing, application, use and care of belting. J. E Rhoads and Son, 35 North 6th Street, Philadelphia, Pa.

62. **Rubber Products for the Textile Industry**—a 40-page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts showing horsepower rating pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan Inc., Passaic, N. J.

63. **S-W Paint Standardization Plan**—valuable booklet telling how protective coatings can effect economies in plant operation and maintenance, describing how each surface is finished to best meet its specific needs, giving ideal lighting and sanitary conditions and economies in increased production. Sherwin-Williams Co., 601 Canal Rd., Cleveland, Ohio.

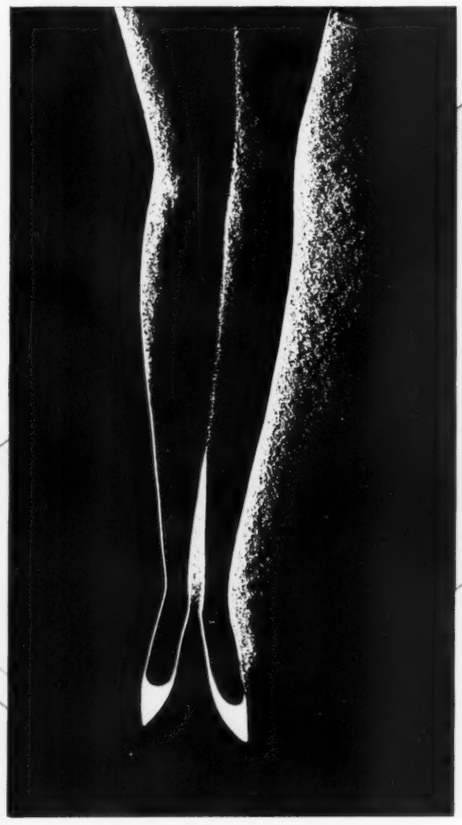
64. **Efficiency and Performance of SKF Roller Bearing Spindles**—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., 40 East 34th St., New York, N. Y.

65. **Why Cooper Hewitt Light is Better Than Daylight**—a 16-page booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Elec. Vapor Lamp Co., Hoboken, N. J.

66. **Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176,** describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

Knitting Section

"THIS IS THE SCOTT & WILLIAMS MACHINE AGE"



There's good news for the hosiery industry, in this new achievement on the already-famous Model K . . . lace tops that are really *stoppers!* They are different enough to catch the consumer eye . . . elaborate enough to suit the new style theme . . . practical enough to put money in the manufacturer's pocket.

An amazing number of variations are possible; now there's no excuse for lace tops that aren't smart, dashing, amusing . . . with these lace tops on the Model K.

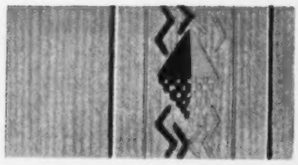
ESTABLISHED 1865

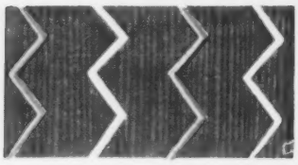
SCOTT & WILLIAMS

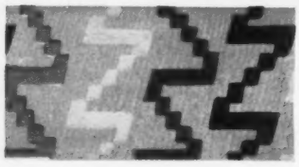
INCORPORATED

366 BROADWAY, NEW YORK, N. Y.

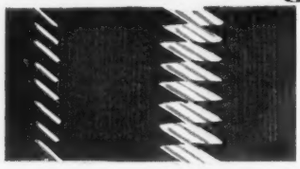
Mesh and reverse plated pattern on the Standard Model H.

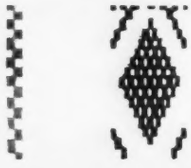


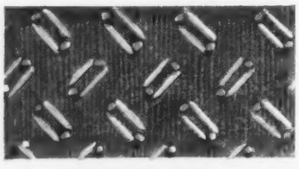




Standard offers you Machines for all types of Fancy Hose.







Individual needle wrap designs on the Standard Model L.

STANDARD TRUMP

STANDARD-TRUMP BROS. MACHINE COMPANY
INCORPORATED
366 BROADWAY, NEW YORK, N. Y., U. S. A.

Efficient Methods for the Finishing Department of a Hosiery Mill

By Fred T. Gaines

The following inquiry in our December issue prompted this complete discussion:

"I would like very much to see some discussion in regard to the finishing department of a seamless hosiery mill. First, I know that all mills do not grade their work alike, but I would like to know what the different mills call a second, third and fourth if they have a fourth grade. I will say we are making fancy 220-needle spiral half hose, on Model H H machines. Our production, running day and night, from the knitting machines, is about 3,000 dozen weekly. The production from the inspectors in the finishing department is about 225 dozen daily, for each operator. The pairers also have the same production. We have two inspectors and two pairers. What are the ideas of your readers as to whether it would be advisable to combine these two operations, eliminating two of these employees? Our cost of inspecting and pairing, using two operators, is two dollars per hundred dozen. I have been told that some of the larger mills use one operator for these two operations and have a cost of $1.25 per hundred dozen."

Mr. Gaines has presented the subject so completely that his answer is used here. Readers are referred to another, shorter answer also appearing in this issue.—The Editor.

THE CONTRIBUTOR prompting this discussion is interested in information regarding a smooth-running finishing department of a seamless hosiery mill as a general discussion, including all detail as applied to finishing fancy half-hose.

Specific questions relate to: (*a*) Different mills' ideas of grading and tolerations in gradings of imperfects, including seconds, thirds and fourths; (*b*) production to be expected from inspectors and pairers and the advisability of combining these two operations; and (*c*) the effect of combining these operations on quality grading and rates.

The weekly production is given as 3,000 dozen and the daily production for each operator is given at 225 dozen for inspecting and the same for pairing which carries a rate of 75 cents per 100 dozen more than is understood to be the prevailing rate for the combined operations.

Finishing Operations.

Beginning with the processing after boarding we have the following principal operations: Inspecting, mending, pairing, stamping, assorting, folding and boxing ready for packing.

These operations are handled in different mills to suit local conditions according to individual ideas of the management. The system existing in each mill, generally speaking, has been molded from the individual requirements of the orders and the type of merchandise being made as well as the methods of handling and routing up to the finishing. These systems include all variations from the combination of all operations to an operator in the smaller mills to highly specialized individual operations in larger mills.

Besides the combined operations for individuals, there is the Huddle system of grouping individual operators around one table so that as a unit, say one dozen, is finished by each operator it is passed to the next operator. Finishing lay-outs vary from the Huddle system and subdivisions of same to the most efficient individual table for each operator.

Production and incidentally the earnings of each operator generally adjust themselves to individual and local conditions and consist of hour rates for all operators to piece rates for all and combinations of both.

Generally speaking, individual tables for each operator arranged in the sequence of the operations is the most efficient lay-out. This permits the fastest operators to take advantage of their skill and encourages the piece rate system. In the writer's opinion, based on experience, individual operations at satisfactory piece rates are the most satisfactory for a smooth-running efficient finishing room and mean more in dollars and cents to both operators and stockholders.

This individual operation piece rate system enables the finishing foreman to know what costs are even with varying production, and quality of work can be controlled for the origin of the bad work can be readily detected.

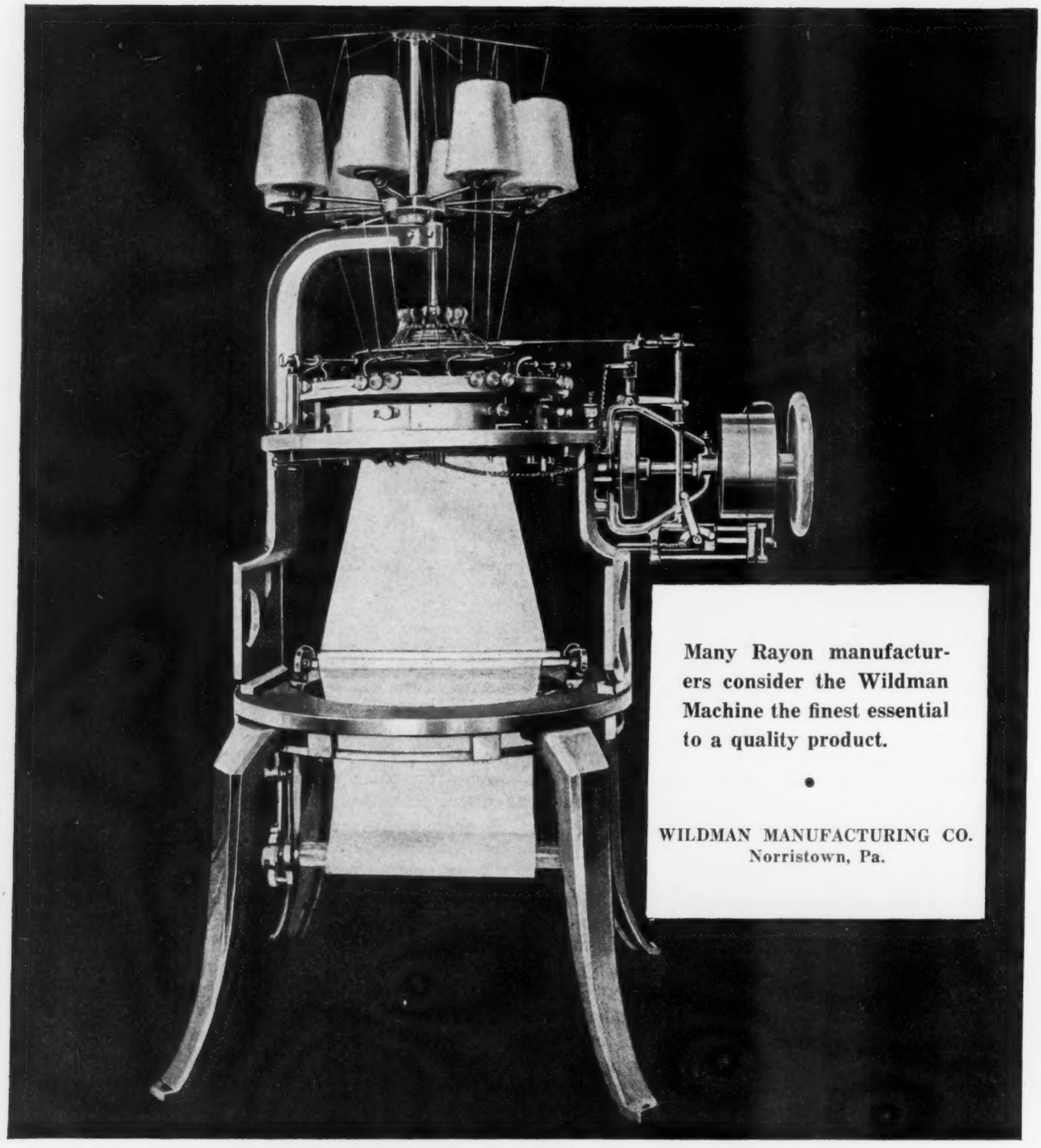
A. Grading and Tolerations. There are numerous factors affecting the different classes of grading and the fact that some mills get a premium or preference for their merchandise means their rigid requirements very definitely determine a clearly defined difference between grades. Such a reputation for merchandise must be established, but it takes customers only a short time to tell what mills are supplying them superior merchandise for the same price, and sooner or later the rigid grading mill will be getting a premium for its merchandise.

This discussion, while from now on confined more closely to fancy half-hose, in principle is applicable to other classes of hosiery.

During the past three years prices of quality merchandise have been so mercilessly hammered down with the leverage of inferior quality and grading at a price that many mills have been compelled to be less strict with their grading and have even changed either the grades or lowered the requirements in each grade so that each individual style almost requires special treatment.

At least each mill has its own grade requirements and in order for those desiring to clearly define grading requirements for their own benefit, Figure A (Half-hose); Figure B (Children's Hose) and Figure C (Ladies' Hose) illustrate different classes of hosiery, and the numbers on the drawing identify the sections of hose. Being confined to fancy half-hose now, it is only necessary to expand principles to include other classes. The writer prefers using four grades provided the class warrants it, and we are assuming that it does.

First Class: Standard sizes knit to size by half sizes 9½ to 12 and boarded on sufficiently over-sized


Many Rayon manufacturers consider the Wildman Machine the finest essential to a quality product.
•
WILDMAN MANUFACTURING CO.
Norristown, Pa.

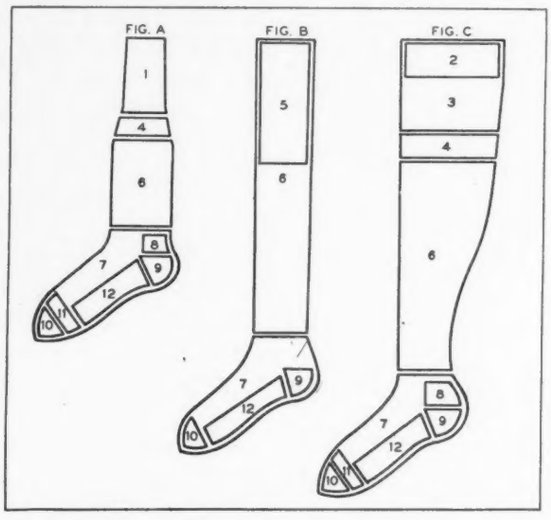
WILDMAN
SPRING NEEDLE BODY MACHINE

WILDMAN
THE WORLD'S STANDARD

boards to finish full size measured from heel to toe along the line touching lower end of heel gore (toleration from size to ¼-inch over size).

Standard lengths knit to finish 15 inches over all (toleration 14¾ to 15½ inches) measured from bottom of heel to the top along the line touching lower end of heel gore. Leg length 9½ inches and rib top 5½ inches.

Standard Stretch—result of proper stitch measured double: Top stretch 6½ to 7 inches; leg 7 to 7½ inches; instep 7½ to 8 inches; foot 7 to 7½ inches, or with double sole ¼-inch less allowable.



Standard Workmanship—that is, free from flaws of all kinds (small mends and drop stitches passable if mended so they are not detected and are as strong as perfect work and will withstand same wear). About two single skips in high splice and double sole sections (8) and (12) are permissible. Dyeings to be commercial matches to samples and fastness to washing. Plaiting and pattern designs to be sufficiently clean cut to be apparently perfect. Pairs to match perfectly.

Seconds (Irregulars): Size not to vary more than ¼-inch over or under standard. Length not to vary more than ½-inch over or under the standard. Stretch to be within ½-inch over or under standard, that is, not too tight or too sleazy.

Workmanship: Mends not over ½-inch long and free from mends in leg section (6) and instep section (7), these mends or weak places to be as wearable as perfects. Plaiting and patterns not to look unsightly or marred though not perfect. Misplaited high splice double sole section (8) and (12) permissible within reason. Slightly off shade or uneven dyeing permissible. Pairs to match.

Thirds (Seconds, 2nd Class): Size not more than ½ size variation from standard. Length not more than 1½-inch over or 1-inch under standard. Stretch disregarded.

Workmanship: All looped toes free from mends in sections (6) and (7) and hand mends not over 1 inch long in other sections with broken out or misplaited double soles and patterns and dyeing do not look unsightly come under the class of seconds, 2nd class; but if included with sewed toes, machine mends and thin heels and toes along with other imperfections the classification of thirds rules.

Fourths (Waste): This is a classification to include sewed on tops and anything wearable that cannot be used in the next higher class and regardless of size provided it is anywhere from 9½ to 12.

It must be borne in mind that several imperfections individually permissible in one class throw the grading into the next lower class. When in doubt always class down to be safe, for example, bad work will get by unintentionally anyway.

This covers grading sufficiently to furnish a system from which to formulate a plan and rules of requirements, and having five classifications which may be combined into three should cover different price classes not permitting such rigid lines of demarcation. In fact, anything not good enough for a 2nd class second should go into waste for shoddy merchandise and salvaged waste is partly responsible for the hosiery manufacturing predicament of today.

FIG. D

OPERATION	NO.	OPERATION	NO.
RIB TOP	1	LOOPER MARGIN	13
INNER WELT	2		
OUTER WELT	3		
RING TOP	4		
DOUBLE KNEE	5		
LEG	6		
INSTEP & FOOT	7		
HIGH HEEL	8		
HEEL	9		
TOE	10		
RING TOE	11		
SOLE	12		

Fig. D herewith lists the operations by numbers for reference.

Production or Task Assignments.

Taking the seven finishing operations previously referred to—(1—Inspecting), (2—Mending), (3—Pairing), (4—Stamping), (5—Assorting), (6—Folding), and (7—Boxing)—it is necessary to have an understanding of the detail requirements and methods employed in previous processing operations to do justice to the different finishing operations because all this pre-determines to a certain extent not only the division of processes but also the operator's production and rates.

One broad example will serve to illustrate this point as regards inspecting and pairing, and knowing one's own mill conditions, it is readily seen how different previous processes and order requirements will affect all finishing processes.

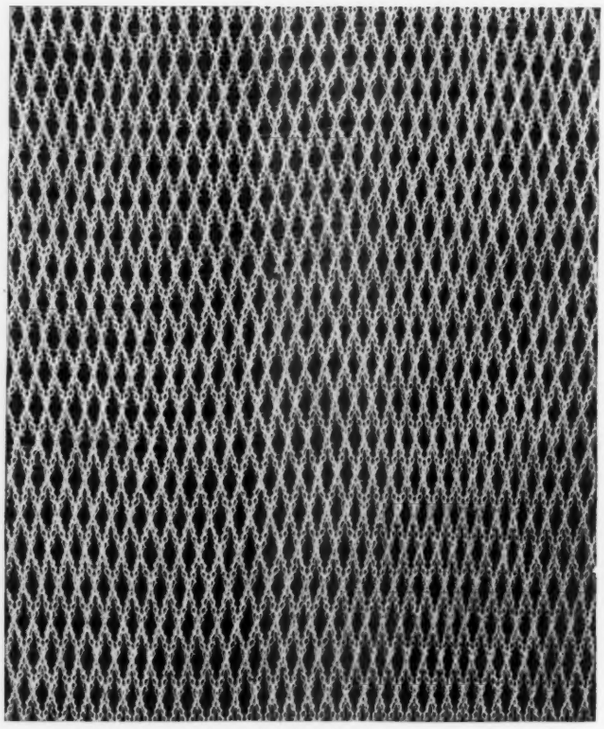
We assume one customer's order is for a sufficient quantity of one style to be put up in half dozens of a color to the box and can be run in hundred dozen lots; and several other customers' orders call for several styles of assorted colors to the box. Naturally,

Fashion says "MESHES FOR SPRING and summer volume sales"

BANNER
MESH ATTACHMENT

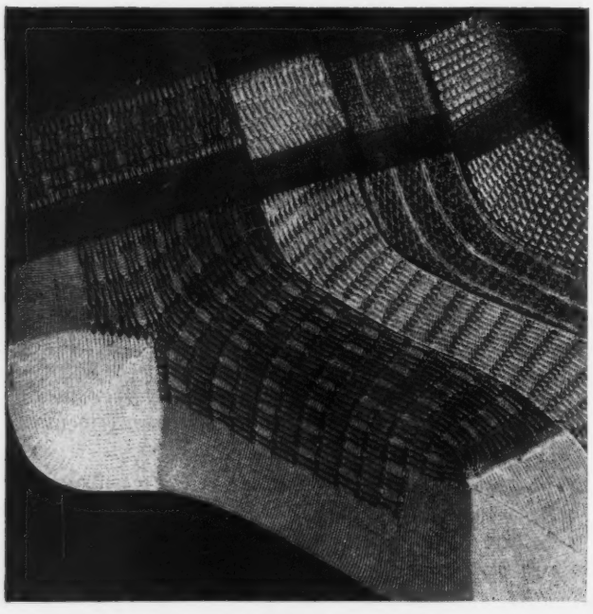
equips any high cylinder Banner machine for this salable production.

The Banner Mesh Attachment can be applied to any high cylinder Banner Machine from 2" diameter up, and up to and including 70 gauge. Low cylinders can be changed to high at a nominal cost for applying the Banner Mesh Attachment.



ACTUAL SIZE PHOTO OF BANNER MESH FOR LADIES' HOSE.

BANNER MESH ANKLETS WITH NARROW SOLE and STEP TOE



Well styled lines of ladies', children's men's and boys' sport hose are showing a wide variety of mesh numbers. Samples to show what this Banner attachment can do for your line will be mailed on request.

●

HEMPHILL COMPANY

PAWTUCKET, R. I.

General Sales Office and Machine Exhibit,
93 Worth St., New York, N. Y.
Philadelphia, 215 South Broad St.
High Point, Commercial Bank Bldg.
Chattanooga, James Building.

the former order can be put through the finishing room with high speed on the part of not only the operators but everyone else concerned, whereas much planning and detail is involved in handling the several customers' small assorted orders. These small orders must be assembled somewhere and unless tremendous finished stocks are carried the assembling has to begin at the grey stock bins, or knitting room, and run through the dyehouse simultaneously, or go through in small quantities and be assembled as sufficient colors are finished to put up an assortment. Under any circumstances every operator's production on these small orders is much less than on an order for full size lots of a color.

Still another factor bearing on finishing production is whether imperfects found in grey inspection are returned to the first class for finishing or finished separately. And after reaching the finishing department the inspector's and pairer's production is affected according to whether they have to re-work their own throw-outs or mends or whether they go to an imperfects operator.

Bearing in mind all these and other influencing factors too numerous to mention, it is readily understood finishing operators' productions are affected to such an extent that it is impossible to be very specific in regard to tasks and divisions of work or operations. However, in regard to the question of combining the operators of inspecting and pairing for 3,000 dozen weekly production the writer's answer is that this would be considered one operation, and depending on how work reaches the Inspector-Pairers, production for ten hours has been known to run as high as 500 dozen daily to under 100 dozen daily with 150 to 300 dozen an average for well-planned processing.

With the operations (1—Inspecting) and (3—Pairing) combined into (1-3—Inspector-Pairer), the writer's idea would be to relieve them of working up menders and throw-outs except to keep separate and list by class on lot and time-work tickets; the re-dyers and re-boarders going to their proper place, the menders to the mender and irregulars to a specialty operator.

This specialty operator handles re-inspecting of imperfects, menders and odds, and grades the work thus received into its proper class, having it stamped and returned for folding and boxing. (This specialty operator can be compensated on a piece rate basis if receiving a regular flow of work, otherwise hour rates will rule.) For such a specialty job it pays to use one's best help for much first class work can be salvaged on this job.

Coming back to regular operations on (2—Mending) no special attention is necessary except to have a rate basis for good and poor mending if on piece work, and if on day work use the bonus method for first class mending. The mender receives work from the Inspector-Pairers mostly with very little from other operators, except perhaps the specialty operator at times. It should be stressed on the Inspector-Pairers that where needed to finish out orders menders that will turn out first class should be mended promptly and returned to them for the order.

Operation (4-Stamping) can most probably be arranged so that there will be sufficient work on a piece basis for one operator to handle 3,000 dozen weekly and assist on other work.

Operation (5—Assorting) really follows (6—Folding) but here again the writer would 5-6 or combine the operation and call it Folding, and unless there were unusual reasons for not doing so, (5-Assorting), (6-Folding), and (7-Boxing) would be combined into (5-6-7—Folding and Boxing). Referring back to the list of operations, then, and taking the combinations into consideration, we have the following schedule:

1. (1-3—Inspector-Pairers)
2. (2-Menders)
3. (4-Stamping)
4. (5-6-7—Assorting-Folding-Boxing)
5. (1-3-5-6-7—Specialty.)

Now, even though this discussion is more or less general for a 3,000-dozen weekly production, it has food for thought for any size production, and those interested enough to read it may no doubt pride themselves on the fact that they have the initiative for sufficient originality prompted from this reading to work out an improvement of some kind in their finishing department to call their own idea.

Effect on Quality, Grading and Rates of Combining Operations.

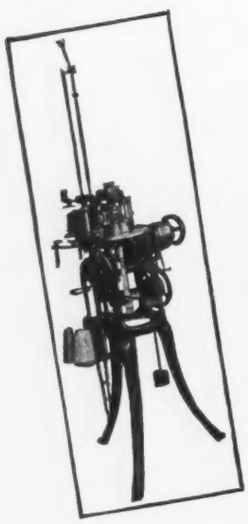
To be sure where there is sufficient production, operators are more proficient on highly specialized operations than combinations. The highly specialized operator develops an efficiency that results in a better quality of work at greater compensation for both themselves and the firms, but in the combinations listed, particularly for the production specified (we must consider the desperation to stay in business under present conditions which make it necessary to deviate from one's convictions at times) there is sufficient argument to justify mills in using operators in such combined operations. Take the particular (1-3—Inspector-Pairer) combination where one operator handles both operations—it saves floor space, extra handling, extra time-keeping and other details which within themselves are sufficient for the one operation to be more profitable to the operator as well as the firm, and entirely satisfactory work can be turned out.

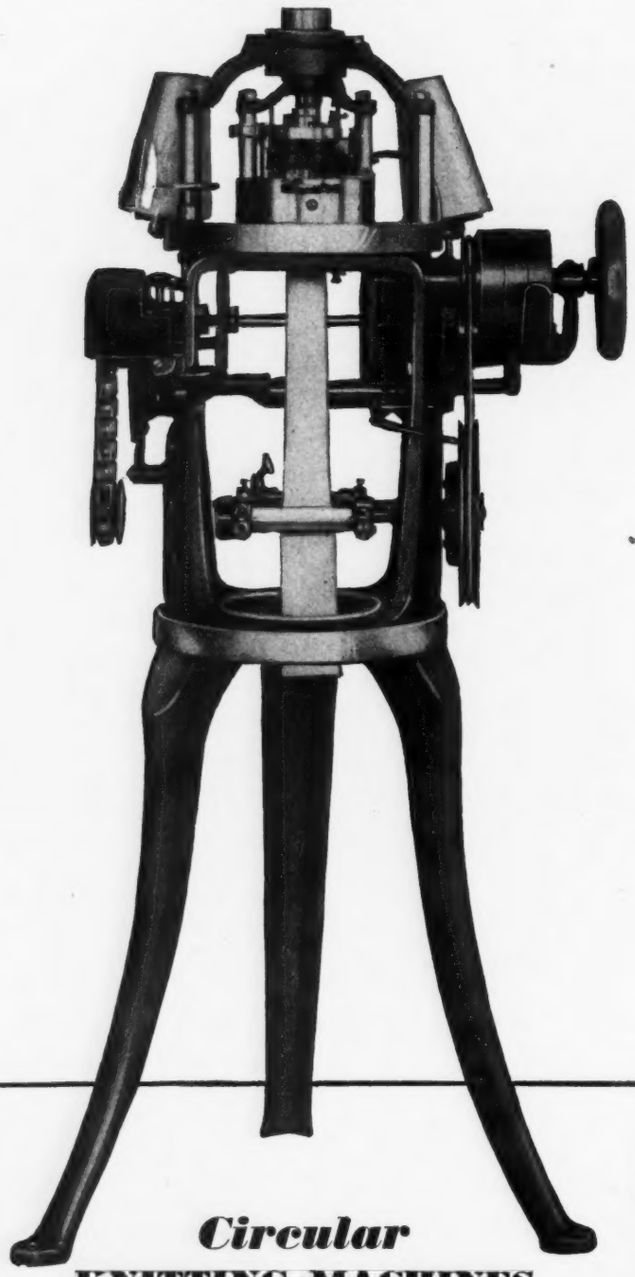
The writer is quite sure that this discussion has been broad enough for anyone interested in the subject to draw their own conclusions, and for the contributor who asked the question, I might state that combination operations (1-3—Inspector-Pairer) no doubt are more general than otherwise and there are reasons to believe that the work can be so arranged that present operators will earn as much or more at the combination work and rate mentioned and with less effort that at the separate operations and the given rates.

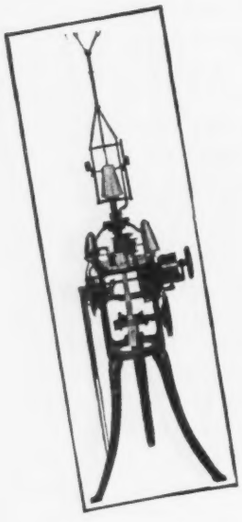
The broadness of this subject necessitates hitting high spots but if any reader of this article finds the kindling for a single idea which might aid the industry, firm, employee or self through greater efficiency, then its purpose is served.

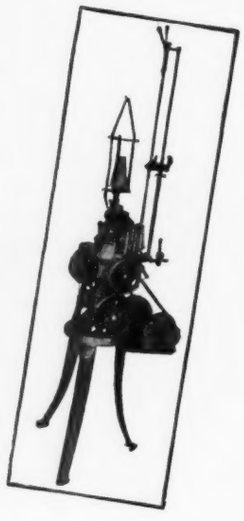
ALL TRUE-RIB

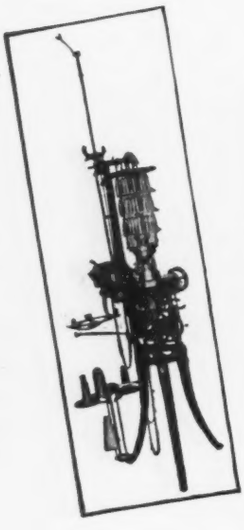
(Patented or patent pending)

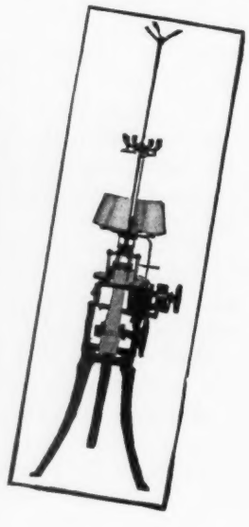












Circular

KNITTING MACHINES
BRAIDING MACHINES
CREASING MACHINES

FIDELITY MACHINE CO.
3908-18 Frankford Avenue
PHILADELPHIA, PA.

THE FIDELITY UNIVERSAL RIBBER

Getting Work to the Dyehouse.

A simple system of insuring that work reaches the dyehouse in regular order.

EDITOR COTTON:

We have recently installed a system for getting our work through to the dyehouse, which I would like to pass on to the readers of "KNITTING KINKS."

For several years we have been using bags for five dozen lots, and we have a lot tag with the size and style of goods and the number of dozens stamped on it. (We turn in our goods in five dozen lots.) There is a section of this ticket to be torn off by each operator and this is turned in to the timekeeper as a record by which they are paid.

It is an easy matter to knit goods in the proper range of sizes, but we have had a lot of trouble when some department is a little behind. For instance, we would knit all the sizes of a certain style for a certain order on Monday, and some of the goods would not reach the dyehouse before the following Friday, unless someone kept right after them through every department. In these days of keen competition and no profit it is impossible to pay a "lot chaser," so we adopted the following system:

We use a looper clipping to attach the lot tag to the bag so we had some of these clippings dyed the following colors: Red, green, brown, yellow, and blue, and we use them as follows: Monday, *red;* Tuesday, *green;* Wednesday, *brown;* Thursday, *yellow;* Friday, *blue;* and on Saturday we use white or natural.

Every operator in each department knows that he or she must do all of the lots with the red string before starting on those with the green string; and then all with the green string before starting those with the brown string, etc. In this way we keep the goods going through each department in order as they are knit. Any goods knit on Monday or Monday night should be ready for the dyehouse not later than Tuesday afternoon.

We have adopted a light red or pink lot tag for our Special Rush lots, and when a knitter is given an order for a certain number of dozens for a rush order he is given enough of these red tags to cover the order, and every operator from the knitter to the men in the dyehouse knows that this tag means a rush lot, and that he or she must lay aside any lot that they may have started and give this rush lot first attention.

With this inexpensive and simple system we do not need a "lot chaser" and our goods reach the dyehouse in the least possible time.

◆ ◆

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

If this simple little idea will help somebody over a place that has been as rough for him as it has been for me, I shall have been well paid for listening to my wife quarrel because the light was shining in her face while I was writing this—and I would only ask that other readers come through and describe some kinks which have been helpful to them.

M. L. (GA.)

Cross-Dyeing Cotton Hosiery.

EDITOR COTTON:

I have noticed lately in your columns some discussion on the cross-dyeing of cotton hosiery. This is a subject of considerable importance to the dyers of knitting yarns, since the type of colors used must vary with the fastness expected of the finished dyeing.

We are supplying all types of shades fast to cross-dyeing but have not yet been able to settle definitely on any particular type of color.

Sometimes we have filled orders for dyed yarn using direct colors, not being aware at the time that the customer was intending to use the yarn for cross-dyeing, and have been very much surprised to find that these direct colors sometimes proved satisfactory.

It seems to be a fact that there are many kinds of so-called cross-dyeings used in hosiery dyeing. The term cross dyeing does not seem to mean anything definite.

We know for a fact that in some mills a yarn dyed

with a developed blue, a blue that bleeds in soap at 170 degrees, is being used for cross-dyeing, so called, with apparent satisfaction. That is, if repeat orders mean anything. And yet we have many customers who positively must have vat colors, or at least sulphur colors before they will be satisfied.

Hosiery in which the dyed yarn is woven in with Celanese or acetate rayon and then cross-dyed apparently does not call for a dyed yarn of great fastness since it seems that even if the dyed yarn bleeds the dye does not stain the acetate rayon. But we cannot rely on that since the knitter may cross us up some time by using viscose, which has actually happened.

We use a test for cross-dyeing that we have found to be at least a safe one, although its use at times calls for a higher type of color than is strictly necessary. We test all of our cross-dyeing yarns to the action of boiling soap, and the dyed yarns so treated must not stain white yarn woven in with the dyed yarn. This is a very severe test but we find that it shows that there is no known type of cross dyeing in the hosiery trade by which yarns so tested cannot be used with satisfaction.

If hosiery mills would loosen up with some information that the dyer of their yarns could depend on, then the hosiery mills doing this would probably realize a saving, since the dyer could use cheaper colors, which saving would be passed on to the hosiery mills. When they keep us, the yarn dyers, in the dark as to what use they are going to make of the dyed yarn, they are hurting only themselves.

FIBER DYER.

Preventing Holes in Full-Fashioned.

Agrees with Baxter and makes some additional suggestions on this trouble.

EDITOR COTTON:

I have had quite some experience on rayon full-fashioned hosiery, and I read with much interest the articles in the "KNITTING KINKS" section of the November issue of COTTON on page 1293 with regard to a problem of large holes, which as Mr. Baxter pointed out, were apparently caused by the thread throwing over the tops of the sinkers instead of entering into the throat of the sinkers. The inquirer had stated that the trouble was greater in the narrow part of the hose.

I think Mr. Baxter has pointed out the probable source of this trouble by stating that it is necessary to build some attachment to the machine in order that the carriers will be only about one inch ahead of the sinkers, since the sinkers are drawn across the head for the purpose of making a course. In other words, as he pointed out, the lead on the silk carrier should be the same at the splicing as when the stocking is begun.

I find that in having control of the yarn or rather in having the yarn taut at all times, better results will be secured. By that I mean that the silk snappers should be taken off entirely and the rayon run over the snapper rods, having the ring tension set so that it is not so much of a drop while the needles are transferring the loop. The best tension I have found is the metal disc. The size may not be too light, but a little heavy. It is surprising what weight it will carry. It will be noticed that with a snapper motion, the rayon at the time of the needle transferring the loop onto the stocking, is slack. There is a tendency for the yarn to jump over the sinker and cause a hole as described. Plain holes will come from too much knock-over. In machines that do not have a movable knock-over bit, it may be found necessary to place the sinker steel under the sinker head to prevent the cut-in holes. It is also necessary to look at the jacks so that they are not cut in, due to the slurcock striking them, making a tight stitch which is very common to see. If the slurcocks have ridges in them they will knock holes in the stocking. Rayon will stand steadiness, but will not stand snapping as caused by ridges on the slurcock.

CONTRIBUTOR No. 6007.

An Unusual Problem.

What would cause this machine to run fast in the long butts, and slow in the short butt needles?

EDITOR COTTON:

We have a knitting machine which has given us trouble for quite a while, running too fast in the long butt needles and then too slow in the short butt needles. What we mean is, the dials run fast and slow, and cause trouble at the transfer.

Our machines are Model HH, 3½-inch cylinder, 220-needle, reverse plaiting, making rayon and Celanese hose with mercerized tops. Any suggestions which your readers may offer will be appreciated.

CONTRIBUTOR No. 6011.

Proper Methods for Finishing Department.

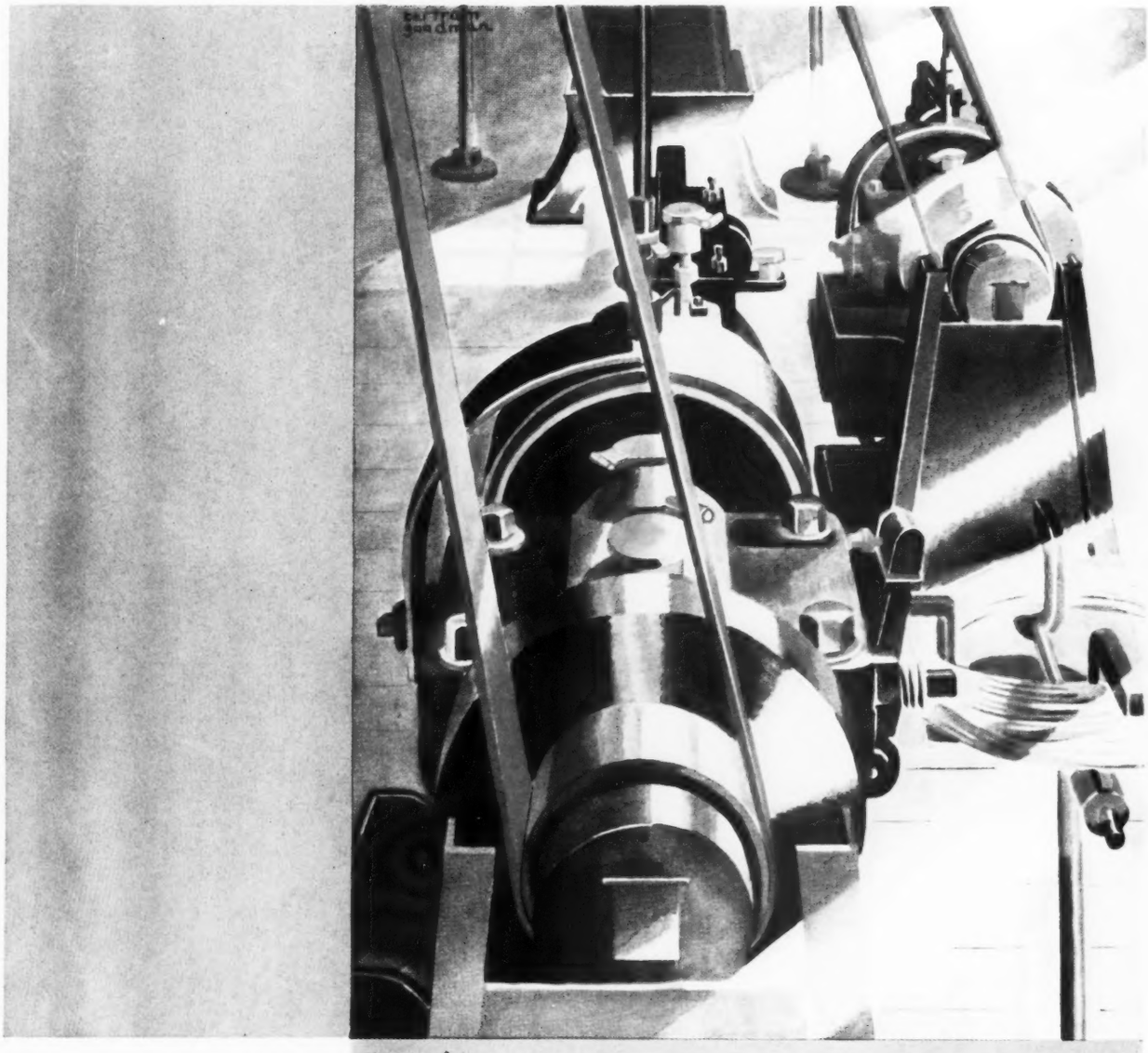
For a more extensive discussion of this inquiry, readers are referred to the article on page 95 of this issue.

EDITOR COTTON:

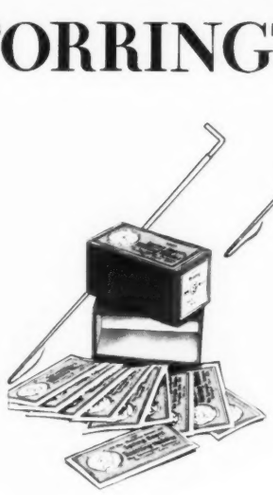
This is in reply to the inquiry of "CONTRIBUTOR No. 6003," in your December issue, with regard to the operation of a finishing department in a seamless hosiery mill. My answer applies to a half-hose mill.

Your inquirer first says, "I know that all mills do not grade their work alike, but would like to know what the different mills call a second, a third, and a fourth if they have a fourth grade."

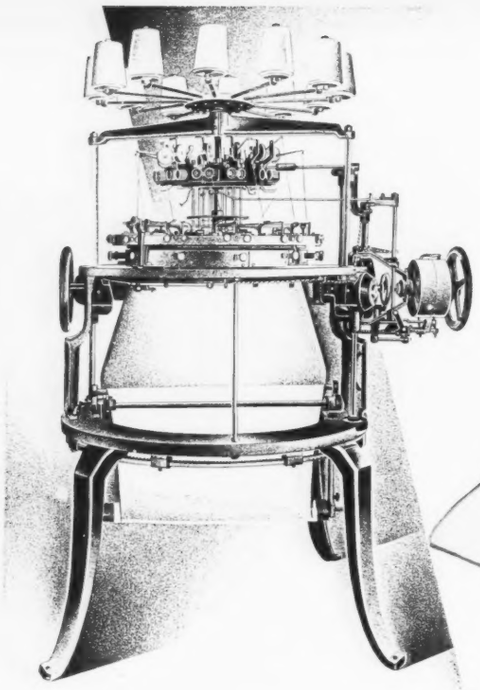
Answering this, I will say that we have a production of about 1,500 dozen per day of all types of plain and fancy half-hose. We grade our goods as first, seconds, thirds and fourths. A second consists of a sock which has a mended place either in the top, heel or toe, but not mended in the leg part of the sock. Of course we put in the seconds, socks which had runners in the leg but these had been latched up and mended very carefully at the end of the latch-up. Thirds consist of socks which have had mended places in the legs and even where the holes in the leg have been sewed up on a sewing machine. Also, where the looping is so bad that it cannot be mended but has to be sewed on a sewing machine making a sewed toe. In fourths we have nothing but fancy hose. These are where the plaiting is very bad or



TORRINGTON *SPRING BEARD* NEEDLES



Machines—row upon row of them—covering acres of space—mysteriously intricate, capable machines. They make Torrington needles; and because machines are precise, Torrington needles are uniform, with a constant exactness that gives you smooth production . . . today's work identical with yesterday's and tomorrow's.



Wildman Spring Needle Body Machine —noted for its ease of operation.

Underwear by Carter

"BY THE COMPANY THEY KEEP"

For evidence of "good company" Torrington points to Wildman machines . . . equipped with Torrington needles . . . producing fabrics that are fashioned into such exquisite underwear as this by Carter.

Wildman machines . . . Torrington needles. In these names there is reflected an emphasis on *quality*, which contributes vitally to the success of the finished product.

The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

BRANCHES:

THE TORRINGTON COMPANY, 1640 FAIRMOUNT AVE., PHILADELPHIA
THE TORRINGTON CO., INC., 140-144 W. 22ND STREET, NEW YORK, N. Y.
LOS FABRICANTES UNIDOS, 964 CALLE BELGRANO, BUENOS AIRES

FACTORIES AT:

TORRINGTON, CONN. • UPPER BEDFORD, QUEBEC
COVENTRY, ENGLAND • AACHEN, GERMANY

TORRINGTON NEEDLES

where one of the yarns in the leg has broken out, leaving only one of the yarns in the leg or foot in part of the sock.

Your contributor next says that he is making fancy 220-needle spiral half hose on H H machines, with a day and night production from knitting machines of about 3,000 dozen weekly; and that he has both an inspector and a pairer for these goods in his finishing department.

Our opinion is that he is going to a lot of unnecessary expense, as on hose of this class and price it is not necessary to inspect the goods before pairing. A pairer can easily do her own inspecting and grade the goods properly. The only goods which we ever inspect before pairing are ladies' silk hose, either seamless or full-fashioned, where the grading has to be very carefully done.

We note that your contributor gets about 225 dozen per day from his inspector and pairer, costing $2.00 per 100 dozen for both operations. He should be able to get at least this same production from a pairer doing her own inspecting, if she has any ability at all and in a small mill like that he should be able to choose his operators carefully and get only the best. Our pairer's production is anywhere from 175 to 300 dozen per day and they do their own inspecting. Of course the latter figure is unusual, but we actually have girls who do this. The average girl should pair at least 200 to 250 dozen per day.

The question of piece rates for this work depends entirely on the location of the mill.

On account of the size of our production we have a special inspector in the finishing department who checks up behind our pairers as well as folders and boxers, to see that the work is being graded properly. However, in a mill as small as that of your contributor's, we don't think that it would be necessary to do much checking as he should be able to select his help very carefully if he has only two or three pairers and should be able to pick the very best in the community and could depend upon them for careful work.

CONTRIBUTOR NO. 6006.

More about Double Sole Plaiting.

Uses yarn off of bobbins; doesn't like filing out throat plate, and says central sinker cam is very important. What do you say?

EDITOR COTTON:

With regard to trouble in double sole plaiting, I was very much interested in reading the discussion of this subject by "CONTRIBUTOR NO. 4962" in your June issue on page 799. He gave some valuable information, and while I agree with him on most of his points, I feel that perhaps I can add something to the discussion—and I hope that by writing this letter I will start some other readers to discussing the subject.

Accordingly, I would like to go back and quote some of this man's statements as this will make it easier for the reader to understand my comments. The article in question was in answer to another man who was using 125 denier rayon in the body yarn and 90s/1 mercerized in the double sole, having trouble getting good plaiting on 300-needle Model K machines.

In the June issue, "CONTRIBUTOR NO. 4962" said, "It is very important for the 90s/1 to flow into the needles as freely as possible. To obtain this result, the cone which the yarn is wound on should be as small as possible. With the yarn on the cone, the bottom diameter should never be over five inches, as it is not possible to have the thread pull off easily if it is larger. The thread guide should be just above a cone in the dead center line of the cone, so that an even pull will be the result as the yarn is feeding from the cone to the needles. A wooden block should be set on the bobbin stand so that there will be no chance of the cone sliding to one side, which would throw the top off center in relation to the guide." He then said that "I have even gone to the extreme of taking the splicing bobbin stand off the machine and setting the splicing cone of 90s/1 on the floor in a position that had been centered by a chalk mark and represented the center line of the cone in relation to the guide. This was done to cause a freer delivery from the cone, and I can say it helped."

With regard to this point, I would say that we have never found it necessary to set the cone so far away from the yarn guide as to get it on the floor. This might be accounted for by the fact that we wind our 90s/1 mercerized double sole yarn onto bobbins before we put it on the machines, and we have found this to be a very satisfactory method.

This man recommended filing out the corner of the throat plate to allow the double sole yarn to get a little farther away from the main body yarn. He said, "I have found that slotting the left corner of the throat plate slightly has enabled me to get the desired amount of separation and eliminate a large percentage of my trouble. * * * If too much is filed out of this corner, the plaiting yarn will miss the hooks of the cylinder needles. The proper way to do this is to first take the temper out of the throat plate, then use a four or six-inch, three-cornered file."

Now I think this idea would work better theoretically than practically. The theory in some cases or rather on some styles is all right, but on other styles, especially where a plaited number is being made, I believe we would find that the yarn would drop too low in the latch of the needles and either make a fuzzy looking stocking, by cutting a portion of the filaments, or cut the yarn in two altogether and make a rag. Now, "CONTRIBUTOR NO. 4962" might say that a single off-hook needle would combat this difficulty, and I would agree that it will do so to a great extent, but it will not completely eliminate the trouble.

This man had another paragraph about the stitch cam, saying:

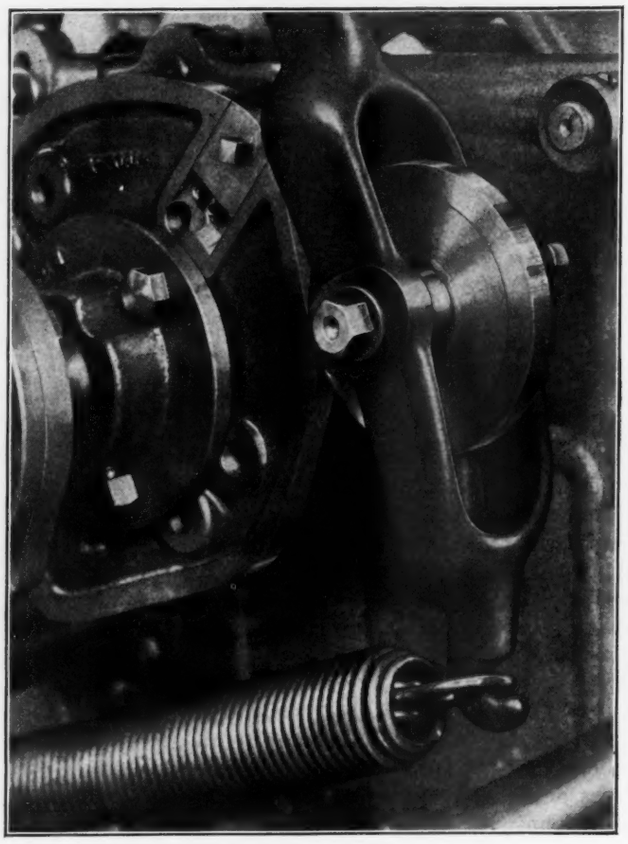
"The left hand stitch cam plays an important part at times in plaiting trouble, and it should be ascertained on machines giving this trouble whether this cam is in good shape. Any nick or improper grinding of the downward slope of the cam will prove detrimental. It should be seen that the left

MORE EXPENSIVE? *Yes!*
MORE VALUABLE? *A great deal!*

Operators of "Reading" machines give little thought to their cams and rollers...They don't have to. We have done the thinking for them so that this, *and all other moving parts*, shall continue to function with the minimum of attention and wear.

A cast iron roller would be "good enough" but a steel tired roller is better. So we finish "Reading" rollers with a band of tempered steel, ground and polished. The bearing is also specially ground, as are the hardened studs.

Approximately 300,000 of these rollers are in service at the present time, some of which have been in continuous operation for more than twelve years and are still in excellent condition—substantiating the statement that Reading users save money, because



"Reading" maintenance costs are negligible

TEXTILE MACHINE WORKS, READING, PENNA.

side cam fits as closely as possible to the stitch cam, and that it is free from nicks."

I heartily agree with him that a good full stitch cam properly ground, will go a long way toward eliminating this trouble, also the sinker cam and bumper screw on the left side of the machine, are very important. But one other thing, which this contributor failed to mention, and which I consider equally as important, is the central sinker cam. This cam is probably neglected more than any other cam in the machine; consequently, its vital points become worn and fail to function properly, or, fail to push the sinkers forward enough to insure good plaiting. This deficiency can sometimes be remedied by taking this cam out and turning it around. This can be done very easily, as the two ends are identically the same; however, the right side is in use only when the maing the heel and toe, consequently it does not wear very fast. Since this side is not required to do any plaiting, the worn side or end will make a very good stitch on the heel and toe.

Now, assuming that we have turned the central sinker cam around, or put in a new one—with this done, if the sinker cam is set in so the throat of the sinker comes flush with the back of the needle, and then the bumper screw is set in as far as it will go without the stitch riding over the point of the sinkers, this will help a long ways toward eliminating plaiting troubles.

We are running a plaited number now with 100 denier Chardonize over one thread of pure silk, with 90s/1 mercerized for the double sole, and our plaiting is next to perfect; in fact, we are not making over one per cent seconds from this cause, which we consider very good.

CONTRIBUTOR No. 5094.

A System of Ribber Pattern Lay-Outs.

Readers operating ribbers are invited to respond to this man's suggestion about questions on these machines.

EDITOR COTTON:

Due to the fact that we are continually changing our ribbers over to various styles during the course of a year, we have found a pattern wheel lay-out, for each style, a convenience and time-saver in planning our changes, and I am going to describe it in this letter.

You will note from the illustrations that there is one for a Wildman pattern wheel, and one for a Brinton pattern wheel. These lay-outs are made on regular blue-prints of these pattern wheels, which are standard, and those familiar with the workings of these machines will readily see the easy method of working out the pattern before changing the machine.

The illustration in Fig. 1 shows a Wildman pattern wheel before any pattern is made. Fig. 2 is the same print with a "Four two course welt" pattern laid out on it is it would be on the machine. On this particular lay-out, I have numbered each cam in the pattern wheel, the numbered cams performing the following movements.

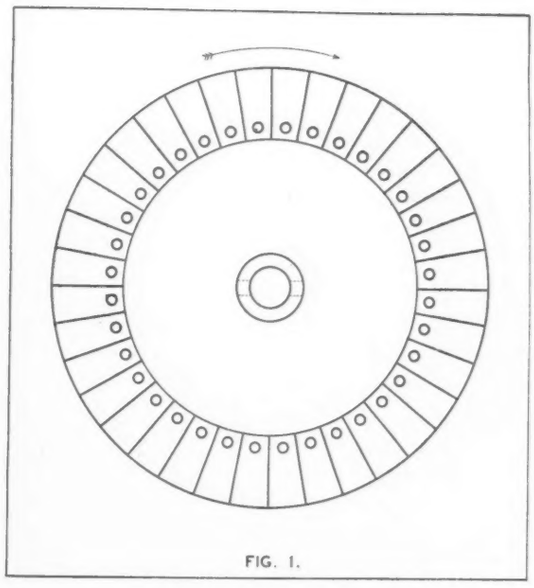


FIG. 1.

Four Two Course Pattern.

1. Start, welt slack in
2. Tuck for welt
3. Straight course, dial needles in.
4. Straight course, dial needles in.
5. Dial needles out, plain knit.
6. Dial needles out, plain knit.

7, 8, 9. Same as 2, 3, 4.

10, 11. Same as 5, 6.

12, 13, 14. Same as 2, 3, 4.

15, 16. Same as 5, 6.

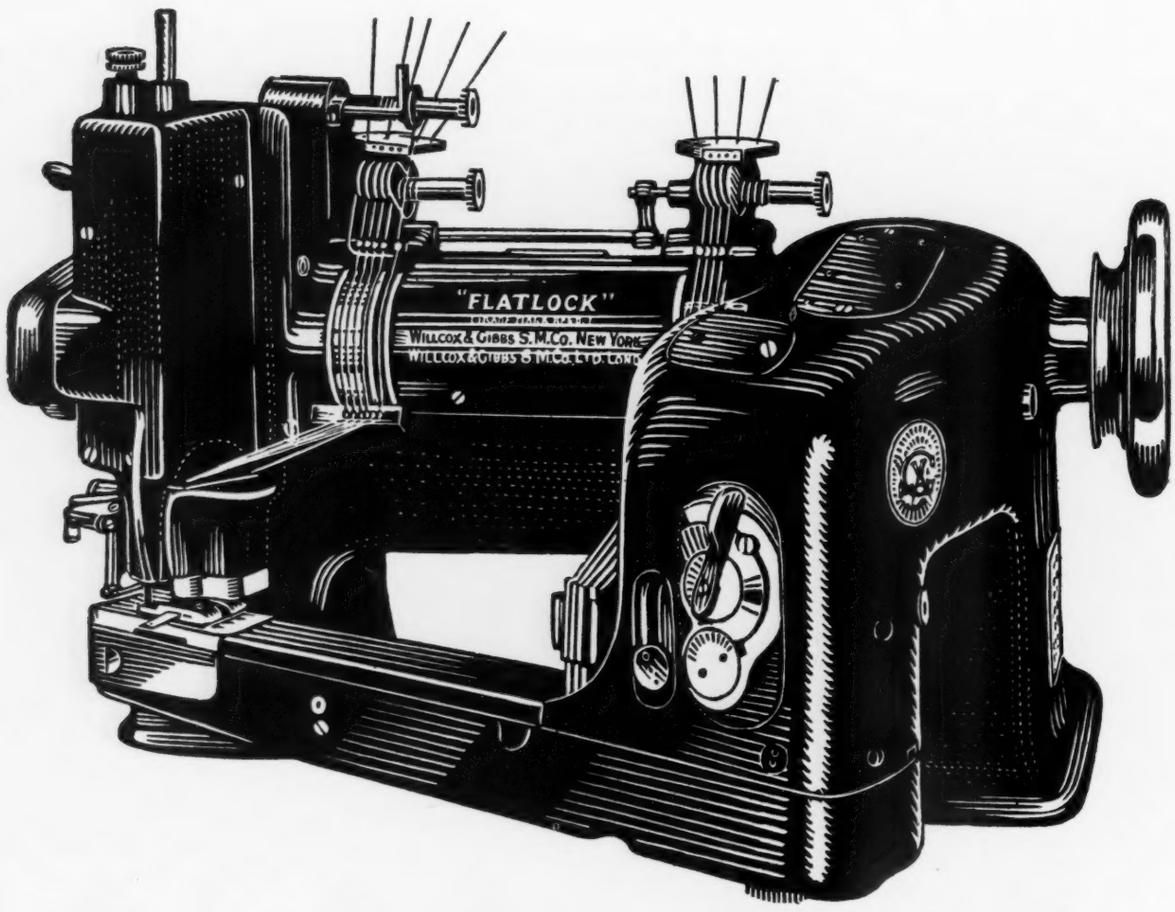
17, 18, 19. Same as 2, 3, 4.

20. Plain Knit.
21. Welt slack out.

22 to 30. Plain rib knit.

31. Rest, before loose course.
32. Loose course slack in
33. Loose course slack in
34. Loose course out.
35. Plain knit.
36. Plain knit, finish rest.

The Brinton pattern wheel, which is shown in Fig. 3, is for a 3-2 course selvage welt. In marking this pattern, we use a red pencil for part of the marking, but since it is not practical to reproduce colors in the magazine, I have substituted the legend which will explain the marking. The circles which are white with one line drawn across the circle show the screws on the



FLATLOCK FIRST FOR FINE FINISH

THE SEAM THAT SELLS THE GARMENT

WILLCOX & GIBBS

SEWING MACHINE COMPANY

658 Broadway · New York, N. Y., U. S. A.

New Willcox & Gibbs Machines and Parts can be purchased only from the company's offices

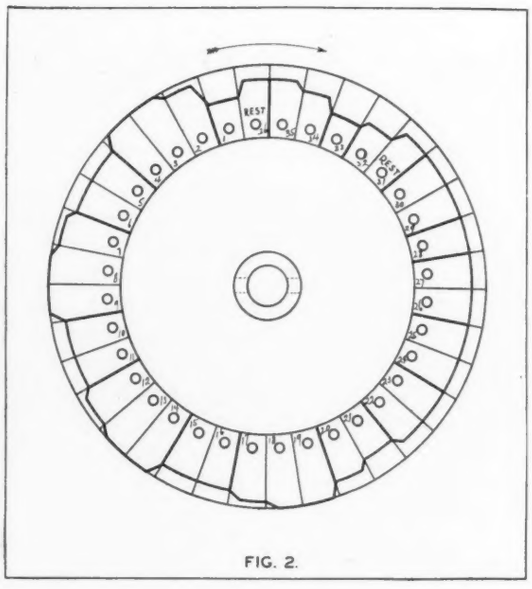


FIG. 2.

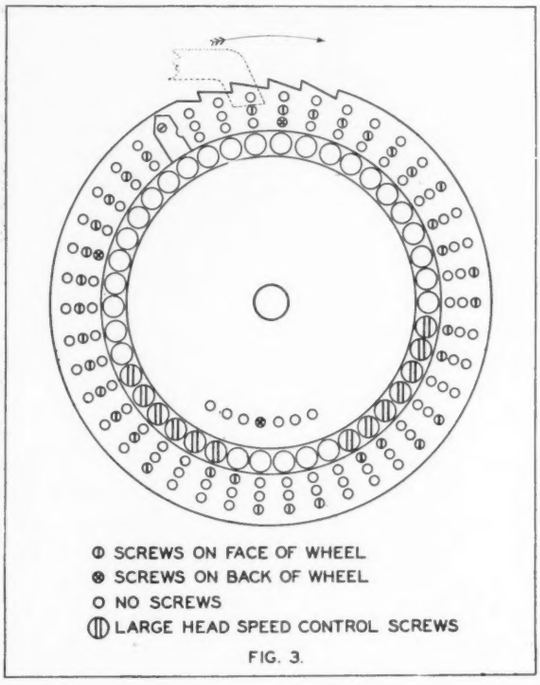


FIG. 3.

face of the wheel. (This we fill in on the blue print in black.) The circles with a cross drawn in them show the screws on the back of the wheel. (In marking these we fill in the circle in red.) The circles which are open indicate no screws. The large circles with two vertical lines drawn through the circle indicate the large head speed control screws.

We keep a record of this kind for each individual style we make on these types of machines, and as we make a complete line of children's hose, it is evident how handy a record of this kind is. I would be glad to see more discussion on ribbers in the "KNITTING KINKS" department, and in this connection would be glad to answer any questions on ribbers which any of your readers would submit.

CONTRIBUTOR No. 6000.

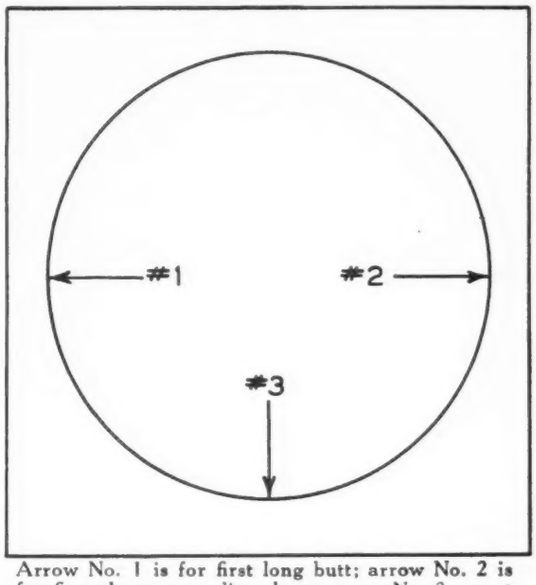
"Needle Finder" for Seamless Machines.

EDITOR COTTON:

Like most other mills we have for some time had the problem of long corners in our looping department. This of course is caused in most cases by not having the needles equally divided in our seamless knitting machines.

When a looper finds a long corner, she reports it to her foreman who in turn reports it to the knitter foreman. Then comes the problem of finding the machine and correcting the trouble.

We have a size boy who checks sizing and inspects for streaks and defects. These stockings with long corners are turned over to him with the number of the set on which they were made. He immediately gets a stocking off each machine on this set and numbers them with a red pencil (as this red will wash out easily). Then he gives them to the looper who finds the ones with the long corner and gives them back to him.



Arrow No. 1 is for first long butt; arrow No. 2 is for first short or medium butt; arrow No. 3, exact center of short butts for seamer line.

Then comes the problem of counting the needles and evening them up. Counting needles on a fine gauge machine is no easy job, and often the fixer makes a mistake of one or two needles and we still have the long corner. To completely eliminate long corners, or "dog ears" as they are sometimes called, you must have the needles exactly half and half.

I know that most machines are marked for the corner needle by chipping off a small piece of the cylinder wall or by similar marking, but as time goes by and cylinder walls are replaced, these marks are not always plain, so we have made a simple little needle counter, using a dial center. This dial center exactly fits inside the needles, and we have marked it with two arrows pointing to the first long butt and the first short butt needle. (See sketch.) The only thing we have to do is raise the latch ring, set one arrow on the first long butt needle, then arrange the needles so that the other arrow points to the first short or medium butt and the job is complete.

CONTRIBUTOR No. 5097.

The KNIT GOODS MARKETS

A RETROSPECT of the field of hosiery in 1931 reveals nothing that has not been apparent to probably every individual, firm and corporation engaged in the manufacture of probably the most talked about item in textile retailing—that the year was the most disastrous, from the standpoint of destruction of values, in the history of the industry. The fall in prices may or may not have been as great as ten years ago, but in that instance there was speedy recovery and the expansion of the business of making and marketing hosiery proceeded so rapidly and to such lengths that now, after a previous year of steadily declining prices, the burden of the cost of this epochal advancement, notably in the production of and increased use of full-fashioned stockings, is falling the more heavily on unsuspecting and illy prepared interests of several years ago.

In the minds of numbers of manufacturers, depending upon the character of their product and their success in marketing it profitably, a perspective lends little hope that 1932, at least during the earlier months, will mark the development of any material improvement except through a diminished number of plants, in step with need for more nearly balancing output with consumptive demand. Concern over marketing conditions in January and February was manifest in the attitude of certain mill executives last month, and the question was heard, "With prices so low in December, when retailing is active, what is the outlook for prices in January?"

This was something that was passing through the minds of many contemplative mill heads. The question was asked, with affected unconcern, by a producer of a line of full-fashioned stockings sold to the retail trade at probably a lower price than was quoted at the time by any other producer. The mill was selling a 39-gauge seven-thread silk, with cotton hem and foot, to retailers for a fraction less than $5 a dozen and, according to the general manager of the establishment, showed a profit. With him, it appeared, the uppermost question was, "will we have to reduce our price next year?" The answer would seem to hang on the question of the relation of stocks in mills to demand at the outset of this year, and the ability of holders of cumbersome accumulations to resist buyer pressure for so-called sale goods.

Activity in Full-Fashioned Production Varies Between Mills and Sections.

PRODUCTION of women's silk full-fashioned stockings continued at near a boom stage in numbers of mills variously located until well past the middle of December. In Reading, Pa., trustworthy reports showed, a few mills were under pressure while operating day and night, some well engaged five days a week for a total of forty hours, and others in need of orders and gradually slowing down. From the best sources available, it was learned that virtually none of the mills was accumulating stocks. In Philadelphia there was a like situation as among manufacturers, a comparatively few mills operating with two shifts. A Georgia mill selling to retailers was run on a day and night schedule and kept sold well ahead. A well known representative full-fashioned plant in the Middle West was using two shifts of operatives and shipping out production.

This stage of activity was being maintained in only a comparatively few mills while the word was going the rounds that November shipments had been disappointing and pre-Christmas sales were in no unusual volume except in leading stores pushing three pairs in special packing at a saving to purchasers. The success of some stores with the use of suede finish slip-in cartons for three pairs, colors and sizes of purchasers' selection, would seem to suggest that one revolution in merchandising for this year will involve the use of more cartons and less paper wrapping—corresponding with the thought of modernization in retail selling of hosiery and various textile items.

Mills in which unusual activity was noted were said to be working only against orders. If this really was the case to the extent of only 50 per cent of such statements, it might be reasonably assumed the year 1931 closed on exceptionally light stocks of full-fashioned hosiery, unless it was the cheap lines, on the order of 39-gauge cotton top and feet, invoiced to retailers at $4.75 a dozen and offered at the counter for 59 cents a pair.

Appeal of "Sales" of Hosiery Diminishing; Dealers Plan to Stick to Regular Goods.

IN the opinion of some observers, hosiery, because of the very low prices for low grade goods, had lost its appeal as an item for gift purposes. Department managers in some leading stores said in reply to a direct question that demand for stockings at around a dollar a pair was outstanding in the pre-Christmas shopping. There was reported but little interest in stockings in the $1.95 a pair price bracket. In fact, high grade ingrain stockings from at least two nationally known mills were being featured around the middle of December at $1.25 a pair, or three for $3.50 in shops boasting of serving "the better trade," and it was stated by one buyer that he had been offered standard construction ingrains which would yield a satisfactory return if sold by the store for 85 cents a pair. Some of the stores supported by the better trade reported their best moving offerings were three pairs of $1.50 stockings for $4.25. All statements of this character are to be treated from the standpoint of the pull of the advertising given to the lines selected for appeal on volume and savings for purchasers.

Since the shopping public has been educated in

CONTROLLED MANUFACTURE Makes DIXIE *Durene* Practical for Full-Fashioned Knitting

Dixie durene's popularity in full-fashion mills is built on performance. Controlled manufacture prevents knots, slubs, thin streaks and uneven winding. Every bit of Dixie durene destined for full-fashion use is passed through an extra inspection; "full-fashion inspection" we call it; and full-fashion consignments are especially wound. In addition, we offer reduced base cones for full-fashion use.

Welt and foot constructions of Dixie durene are winning the confidence of retailers and women because they add days and days of wear for the consumer.

Let the Dixie representative in your territory furnish you samples of Dixie durene for a trial run on your full-fashion machines. You will find immense possibilities in this yarn for your line.

DIXIE MERCERIZING COMPANY

CHATTANOOGA • TENNESSEE

DIXIE DURENE... A Product of Controlled Manufacture

recent years to expect markdown sales in January, it is not improbable that some buying at the counter was postponed from December to the present month. Special sales last month seemed to lack the usual pull. In fact, several merchandise managers say they are done with special sales, that hosiery has lost its potency as a leader for such occasions. One leading corporation, retailing in New York and in Philadelphia, states it has built up a good business in hosiery by having discontinued its "sales" and adhering to given standard lines which its clientele has accepted. "All of our future sales, if any," it was officially stated, "will be of goods from our regular run of stock, in the event of need for a cleanup for making way for new styles."

Patent Situation on Lace Constructions.

Sales of certain types of hosiery for which patents have been granted or are pending are said by some leading retailer interests to have been retarded by warnings from owners of the patents to be careful that infringements are not offered. This claim was made some weeks ago by a manufacturer who had filed suit for damages for loss of sales through issuance of such a warning. Quite recently the Ajax Hosiery Mills, owner of the patent, retaliated by bringing an action against the complainant in the previous suit, for alleged infringement.

Buyers for some leading stores relate they are having trouble over patented hosiery. This was commented by a department manager who had been warned by the Ajax company having a patent for its form of lace hem and was echoed by several similarly situated. One buyer said it appeared to him the Ajax company claimed its patent covered every type of lace hem excepting those of John M. Botts, of Harrington & Waring Co., and the H. C. Aberle Co.

The Botts patent applies to a lace effect in a single welt, and the hem of the Aberle Co. in question is knitted on seamless machinery. The Ajax company is quoted as saying through its president that it does not concede the Botts patent is not an infringement and that there is some doubt as to the Aberle hem. "I am beginning to feel," said a department store buyer, "that before we offer any type of patented stocking we should have a contract guaranteeing the store against loss in the event the courts sustain a claim of alleged infringement."

The Ajax company licenses a limited number of manufacturers to knit the hem covered by its patent, charging them 10 cents a dozen royalty. It is a stipulation, however, that the licensee will maintain a given price—around $7.50 a dozen for standard 45-gauge, for example. This feature of the licensing is viewed by store buyers as calculated to prevent the lace hem stockings being used in price competition with seamless lines or alleged infringements for full-fashioned.

With the increasing popularity of lace construction for the entire leg—and foot as well—it is felt by some important factors in retailing that the lace hem in itself will cease to attract as much attention as in the recent past. But, as suggested by the sales department of a nationally known wholesale establishment: "It would be impossible, in the present condition of the hosiery markets, to predict, with any degree of accuracy, what may happen to any style."

It was noted during the November and early December high pressure operation of some of the full-fashioned plants that those producing lace pattern stockings were invariably included among the really very busy. Some of the equally active, however, were operating no lace attachments, although they may have bought lace goods in the gray. For example, the Rodgers Hosiery Co., Philadelphia, operating day and night time steadily for a year and a half, when scrapping a number of 39-gauge machines last month was installing its first unit of 45-gauge equipment with attachments for producing every known type of fancy hosiery other than Jacquard, it was stated by the managing executive.

The Rodgers is one of a group of three mills in which Bromley interests control. One of the others is the Windsor, which also is installing similar modern equipment. It is the opinion of some enthusiasts over the future for lace stockings that a good grade of full-fashioned will be available to shoppers for as low as $1.25 a pair. Such a price might appear necessary, since several very attractive lines of seamless knit hose are moving into distribution at a pace satisfactory to the makers. One of these numbers, in hexagonal patterns, all-over lace, even to heel and toe, is from the mill of the Weinerth Knitting and Machine Co., in Reading, whose general manager, Joseph S. Lerch, is president of the Rock Hill (S. C.) Hosiery Co., Inc. He expresses absolute confidence in lace construction for 1932. Another lace line is from the mill of the James A. O'Connell Co., Philadelphia, all-over lace except as to cotton reinforced heel and toe.

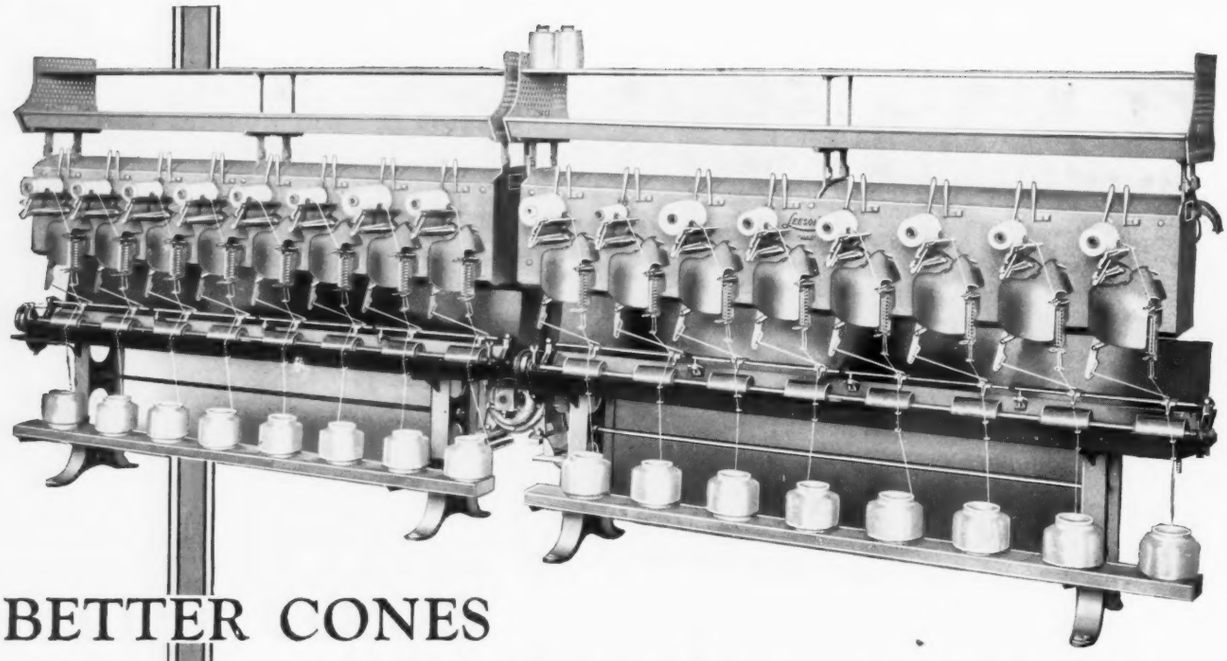
The O'Connell stocking is of diamond pattern and last month was sold ahead of machine capacity. Although the management is much elated over the success of this number, it was stated during the demand for rush deliveries that no additional machines would be made over except for taking care of firm orders. This is commented on in the trade as a wise course, in view of the whims of woman in matters of apparel style. It would appear, from manufacturers' quotations, that a right good type of four-thread silk lace stocking to sell for 75 cents a pair might be a simpler proposition than a 42-gauge plain staple chiffon for a dollar.

Net, Mesh, "Lace-Mesh" and Similar Styles Appear to Have Good Prospect for Spring.

A SEEMING safe guess as to hosiery style for the spring and summer season for which distributors soon will be making preparation is net construction in mesh of conservative size. Some of the so-called mesh is lace in appearance, and already the term lace-mesh is heard, for either lace or mesh not on the fishnet order of construction. As between lace and net and variants it would appear that plain staples will be subject to hard crowding. This may be said to be foreshadowed in the experience of an up-state Pennsylvania mill producing the better types of silk full-fashioned.

This mill, widely known in the trade, some weeks ago discontinued the production of silk staples pend-

ROYERSFORD NEEDLES
STANDARD STEEL AND DURAKROME



BETTER CONES
WIN BROADER MARKETS

SILK AND RAYON require a package that is sufficiently durable to withstand commercial handling, that can be applied readily and widely to mill processes, and that delivers freely without straining the delicate fibres. Universal-wound cones anticipate every requirement for a unit of distribution that is compact, versatile in use, and susceptible to rapid and economical production.

The *New Universal No. 30 Coner* is a machine of simplified and improved construction for winding silk and rayon cones. Every facility is provided in this machine for producing uniform cones of highest quality in regard to the winding.

The No. 30 is a unit of eight spindles, enclosed for clean operation. Higher spindle speeds and convenient arrangement contribute to high productivity from each spindle and from the operator.

Simplified adjustments of tension and pressure control insure uniform winding on all operating spindles. The gear gain mechanism effectively prevents any deviation in wind that could be reflected in the quality of the cone.

The highest quality product will be enhanced by marketing the precision cones produced by this new high speed winder.

LEESONA

UNIVERSAL WINDING COMPANY
BOSTON

UNIVERSAL WINDERS

327

ing a healthier demand. This action was decided upon when, the manufacturer says, he could no longer sell his product at profitable prices. He went into the manufacture of tailored mesh-hose and, partly by reason of the favorable standing of the mill in the trade, is selling a considerable production at a profit said to compensate in large measure for the temporary disuse of the full-fashioned equipment.

There has been well sustained demand for 42-gauge chiffons and seven-thread stockings, at mill prices in a range of around $5.75 to $6.75 a dozen and more. These are dollar stockings in some of the better retail stores, although tagged 79 cents in some of the less pretentious. According to some merchandising authorities, first quality 42-gauge and irregulars not guaranteed as of also 42- or finer, are not infrequently seen on the same counter priced 59 cents. This enables the dealer to get a fancy price for the substandards while taking down almost a normal profit on the first quality, which of course do not predominate in the display. Some persons call this merchandising; others term it larceny.

Low prices for 42-gauge stockings have pushed 39s to a level where, it is stated by some manufacturers, it is impossible to get repeat orders for types which show a profit for the mill. One producer of 39-gauge says it is the only class of stocking that he can knit profitably, and that if the public wants cheaper stockings he will install more 39-gauge machines. The overhead on operation of such equipment is very low, it is pointed out, since it must be on the order of an antique, as no new 39s are being built, according to machine builders.

A Philadelphia mill which a creditors' committee is liquidating is reported having a bid of $25,000 for its 60 machines of 39-gauge. This bid, it is understood, covers all of the auxiliary equipment and implies that the machinery would not have to be removed from present quarters. A previous asking price was $16,000, the buyer to remove the machinery. There would probably be little difficulty in getting the latter figure if the creditors were willing to sell the equipment piecemeal. Report is current that some 36-gauge footers still extant are employed in knitting feet on 39-gauge legs.

"Adjustables" Don't Appeal to Staple Men.

Manufacturers of staple numbers and hosiery knitted to definite length question the expediency of offering stockings adjustable to length by various patented processes on the ground that adjustability is not conducive to sales. A person wearing 31-inch stockings, it is held by the objectors, has nothing to gain in price or otherwise by buying a stocking that may be adjusted to either 30 or 33 inches. But for the adjustables there would be room for the standard 30-inch, subject to an inch plus or minus as recommended by the Philadelphia conference under the auspices of the Bureau of Standards of the Department of Commerce, and one source of "trouble with hosiery patents" complained of by some of the buyers would be eliminated.

Buyers for stores operating large hosiery departments express approval of the indicated steady elimination of 39-gauge stockings, a reported definite trend to 45-gauge and an alleged declining demand for 48-gauge. Some look for 45- to be as popular a few years hence as 42-gauge now is. As is pointed out, the fewer classifications by gauge, the fewer numbers stores will have to carry and, therefore, the heavier their purchases of the remaining gauges.

A well known buyer's idea of gauge for women's hosiery is 42- for the lower price bracket and 45- to represent the bulk of market requirements; gradual elimination of 48- and 51-gauge, with 54- for the moderate price fine gauge. Several manufacturers knitting conservative quantities of 54- are reported having had a substantial pre-Christmas trade in goods of that gauge, which is understood to be regarded by the Oakbrook Hosiery Mills in Reading as justifying its proposed entrance into the 60-gauge field, a contract for machines of that gauge having been placed recently.

Lower Raw Silk Prices Causing Mills to Produce in Order to Use Up Supply.

STEADILY declining prices for raw silk are given as an explanation for numbers of manufacturers continuing production until late in December, in the face of a threatened accumulation for buyers to play with in January. With silk having fallen to the lowest price for all time, manufacturers reasoned, their stock of silk in ready-to-ship hosiery might show them less loss than if in the bale. Some therefore continued production, to use up their high price raw silk in stock, and several boasted that they would enter the new year with the lowest stocks of both finished hosiery and raw silk in their experience. There was stacked up some hosiery in the gray to be dyed and finished only against orders. This was considered as safe an asset as a manufacturer might expect for his year-end inventory.

The reports of lower stocks of raw silk in mills conform to the statistics supplied by the Silk Association of America showing a steady decline in deliveries to American mills for each of the three months September, October and November. The total decline for the three months, comparing with the corresponding period of last year, was 13,787 bales.

Silk full-fashioned stockings ranked second in the October gain in exports of hosiery, as reported last month by the Department of Commerce. Shipments of women's full-fashioned silk to foreign ports amounted to 33,660 dozens, compared with 27,061 dozens in October of last year, a gain of approximately 23 per cent. Exports of women's seamless silk in October were reported as 1,850 dozens, a decline from 2,712 dozens in October last year. The gain in exports as a whole, all classes, was 16 per cent.

Regarded as outstanding in the detailed statistics of hosiery produced in October is the showing of an indicated decline of 46 per cent in the output of silk-rayon hosiery, from 215,357 dozens in October last year to 116,623 dozens in October this year. This is about equivalent to the drop in men's silk-rayon half-hose, the indicated production in October this year being 76,392 dozens against 145,329 dozens in the cor-

The mercerized yarn for satin-smooth finish, superior strength and luster. Of interest *only* to makers of quality fabrics — knitted or woven.

STANDARD-COOSA-THATCHER COMPANY

CHATTANOOGA, TENN.
Executive and Sales Offices
Lafayette Building, Philadelphia, Pa.

responding month of 1930. The decline in production of women's silk full-fashioned was about the same as that in output of hosiery of all classes as a total. Obviously the more encouraging feature of the statistics, representing reports from 318 identical establishments, was the indicated decline of 1,160,248 dozens in stocks in mills at the end of October. This, however, is offset by a showing of a decline of 1,295,464 dozens in unfilled orders. The sharper drops in unfilled orders were in men's half-hose and women's full-fashioned.

Opinion persists that men's half-hose are to be on the plain order. Patterns are costly and prices highly competitive and usually inadequate. Traders, generally, from comment heard in the primary markets, lean to the belief that the plain, with perhaps clocks or panels or some other conservative ornamentation, will be of silk. Plain silks of 12 thread, fine gauge at $3.75 a dozen are reported having a satisfactory sale for the comparatively few northern mills specializing in them. Cheap lines, it is believed among traders, will continue to feature patterns.

Mills in interior Pennsylvania which long have been factors in the manufacture of men's coarse gauge cotton half-hose are running against orders and seldom are on short time, it is reported in the yarn trade, which seems to be about the only channel of mill news in this line.

The markets for children's stockings, notably boys' and misses', are rated satisfactory as to orders for spring, and prices, while low, relatively stable. In the children's and infants' groups, shipments are represented as matching those of last year, and exceeding them, in instances.

Underwear Markets Unsettled by Weather.

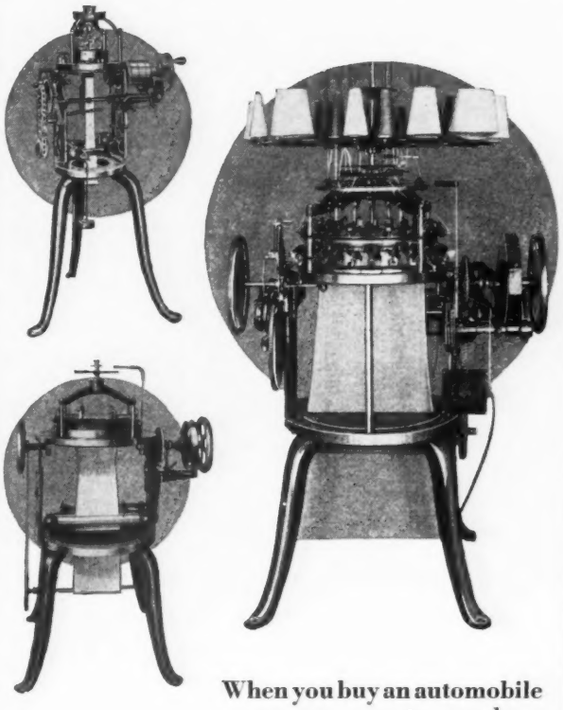
OPERATING in the underwear primary markets is described by traders as being on the between-seasons order. A poll of a half dozen or more representative jobbers around the beginning of December revealed no stocks to be carried over. There were goods still in stock awaiting retailers' shipping details, but it is understood these were pretty well shipped out by the middle of the month under the inspiration of a sharp drop in temperature.

Distributors, generally, were busy with shipments through November, and since then have been placing dependence on repeat orders, the size and frequency of which, shippers say, will be governed by readings of the thermometer. It was the impression in the trade that the outlook for much additional business in mens' heavy weights was not encouraging, and that in the event of a protracted cold spell, dealers would have as great difficulty in getting prompt deliveries as mills have had in obtaining orders.

Although there is an increasing tendency to the use of light weight union suits for all year round wear, to which is ascribed in part the light volume of business in men's heavies, few mills express enthusiasm over their unfilled orders for light and medium weight union suits, which are sold freely every month in the year, as are athletic shirts and shorts.

It is explained that retailers are reluctant to make commitments for any types of underwear that are

MODERNIZE *your* PLANT *with* BRINTONS



Ribbers of every type.

Jersey Machines Plain and Fancy Stitches.

Rib Body Machines For Underwear and Bathing Suits.

Sweater Machines Rib and Jersey Types.

Special Knitting Machines From ¼ inch to 36 inches.

When you buy an automobile—you are sure to purchase a car with a proud performance record. Why not apply the same excellent logic when you equip your mill with knitting machines? The name Brinton stands as high in its field, as Rolls-Royce, Packard, and Cadillac in the automotive industry.

Depend on Brintons

H. BRINTON COMPANY

3700 Kensington Ave., Phila.

New York Office: 366 Broadway

BRINTON CIRCULAR KNITTING MACHINES

of EVERY Kind for EVERY Purpose

FIVE OUTSTANDING DAYS

OF THE KNITTING CALENDAR

The Twenty-Eighth Annual

Knitting Arts Exhibition

Commercial Museum
Philadelphia

April 11-12-13-14-15, 1932

FIVE DAYS in which the heads of the knitting trade will gather at the Commercial Museum to view the largest and most educational display of knitting machinery and allied products in the country.

FIVE DAYS to actually demonstrate your products to thousands of mill executives, superintendents and purchasing agents.

FIVE DAYS to find new customers and renew acquaintance with old customers.

FIVE DAYS to familiarize your name to thousands and build solid and dependable business for the future.

FIVE DAYS that will increase your sales for YEARS to come.

NO MANUFACTURER, DISTRIBUTOR, JOBBER or DEALER selling the knitting trade can afford to overlook these

FIVE DAYS

SPACE NOW SELLING

Write, wire or phone for information

Chester I. Campbell, General Manager, 329 Park Square Bldg., Boston

not essential to maintaining lines for seasonal selling, on the ground they are conserving their resources for such goods as climatic conditions of the next two months may dictate. Dealers point out that they look for no rush for light weights so long as there is a possibility of demand for heavies developing suddenly. They may want considerable deliveries of 12-pound union suits in January, it was suggested by jobbers, few of whom, it appears, were prepared for any great spurt.

Manufacturers and jobbers selling in wide territory report right lively interest in men's rayon athletic shirts in the 50-cent lines. There is a considerable element among dealers calling steadily, also, for rayon shirts to pass over the counter for 25 cents. As to rayon union suits, distributors report continued decline in demand.

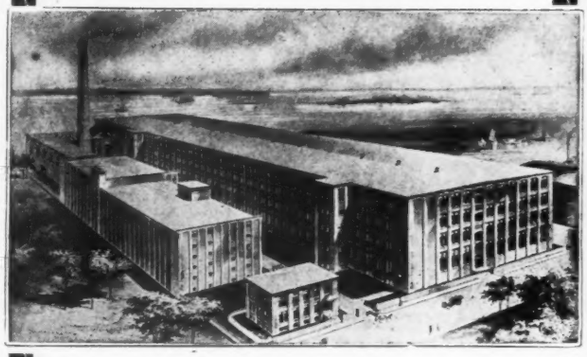
With manufacturers of sweaters at the end of their production season this year, and but starting out with samples of spring lines, and bathing suit manufacturers suffering from a price war and barely getting started with their sales for the 1932 season, the knitted outerwear industry is waiting at a time when ordinarily it is active. Weather is the explanation as to sweaters, although potential production seems more than ample for taking care of the needs in this respect for an old-fashioned winter.

Lack of demand and inability to sell at adequate prices forced bankruptcies and receiverships for several of the apparently more substantial establishments, while creditors' committees are handling the affairs of others. Troubles of this character came about the time the mills involved were finishing their fall and winter production season. Some had suffered cancellation of orders, because of climatic irregularities.

Manufacturers whose road men are touring with spring lines are to cover their trade again in January, their responses to initial offerings not being satisfactory. To add to the perplexities of sweater manufacturers, jobbers are attempting to organize for trying to put a stop to the practice of some mills in selling to both jobbers and retailers, giving the latter the advantage of their prices to jobbers, in instances. This is a revival of what was attempted a few years ago, certain mill heads joining jobbers in the movement for discrimination between fish and fowl.

Price competition seems the chief complaint of bathing suit mill heads discussing trade conditions. A manufacturer who six or eight weeks ago cut his price for pure worsted swim suits to $9.50 a dozen expresses himself as wishing he had not done so. The mill had a large and profitable business last year and hoped to expand it for the coming season by making a price so low that enough business might be booked to enable the plant to operate day and night, thus minimizing overhead, which was expected to compensate for the price cut. The contrary happened, and this mill, besides having not enough business to warrant full daytime operation, disturbed the situation for others. This was not the only mill that made a mess of the fall market for 1932 bathing suits. A line of worsted suits from a New England mill was brought out about the middle of December to sell for $8.50 a dozen for men's.

Quissett Mill
New Bedford, Mass.



YARNS
by
QUISSETT

SIGNIFY TO THE BUYER AND SELLER ALIKE . . . THE PRESTIGE OF PERFECTION

The reputation of the manufacturer of a product should be weighed as carefully as the advantages of the product itself.

The name Quissett . . . backed by the experience of nearly a quarter century of pioneering in yarn production . . . is an unwritten guarantee of the finest in materials, strength and uniformity.

Modern yarns . . . produced by 80,000 spindles . . . are up to the minute in every detail . . . quality yarns which make textile selling easier . . . yarns which reflect prestige wherever used.

QUISSETT MEANS QUALITY

Wm. H. Butler, Pres.
Edward H. Cook, Treas. Thomas F. Glennon, Agent

AVONDALE MILLS

Sycamore, Ala. — Sylacauga, Ala.

OFFER THE ADVANTAGES OF LARGE FACILITIES — QUICK SERVICE

THEY CAN READILY SUPPLY ANY TWIST, PLY, OR PUT-UP IN CARDED OR DOUBLE CARDED YARNS FOR KNITTING, WEAVING OR INSULATING IN ALL NUMBERS FROM 3's TO 40's.

Selling Agents:

WATERMAN, CURRIER & CO.
INCORPORATED

BOSTON CHARLOTTE NEW YORK
PHILADELPHIA READING

Absolutely Pure- nothing else will do!

This assurance of dependability is responsible for the industry's widespread acceptance of

Quaker OILVENTINE PASTE

Here is a product which guarantees perfect scouring of textile fabrics, full penetration of the chemic and uniformity of shade, thereby eliminating costly re-dyes.

Also adaptable for Kier Boil Assistant on cotton fabrics.

QUAKER CITY CHEMICAL COMPANY
Division of
O. F. ZURN CO.
PHILADELPHIA, PENNA.
KNOXVILLE, TENN. HAMILTON, ONT., CAN.

SILK HOSIERY FINISHES

BROSCO DULL FINISH-FINISHING COMPOUND S. P.
BROSCO SCROOP OIL

Can be used alone or in conjunction with one another to produce any desired feel and finish.
Does not shrink or tighten up the fabrics.

SCHOLLER BROTHERS, INC.
Amber & Westmoreland Streets
Philadelphia, Penna. Since 1907

SCHOLLER BROTHERS, LTD.
In Canada St. Catharines, Ontario Since 1927

Sewing Operations

are done better, faster and more economically on Union Specials.

Union Special Machine Co.
400 N. Franklin St., Chicago, Ill.

ARE YOU UP IN THE AIR ABOUT AIR?

Our humidification engineers are at your service without charge to make a written survey of your humidification needs. Get an expert "air doctor's" advice on your humidification requirements. Write us today.

American Moistening Company
Providence, Rhode Island

A Trend to Centralized Distribution.

CENTRALIZING of distribution is believed by some of the leading knit goods interests to be foreshadowed in the announcement as of December 1 that William Iselin & Co. would on January 1 turn over to A. S. Haight & Co., all of its underwear and knitted outerwear accounts. It was stated officially in connection with the announcement that Iselin & Co. would discontinue distribution of these knitted lines, after 60 years of selling agent for both. The Haight company, which has been in business as mill agent for 50 years, some time ago gave up its knitted outerwear lines, and confined its efforts chiefly to the sale of the production of eight underwear manufacturing concerns. Returning now to the knitted outerwear field and adding to its underwear lines, the Haight Company takes over the accounts of nine mills, underwear and outerwear, which have been represented for years by the Iselin company.

By some factors the merging of so many important mills for a single representation is heralded as a step toward better control of the markets, more especially for outerwear, and placing jobbers in a stronger position for supplying retailers, instead of duplication of effort by numbers of mills to sell in small lots to the retail trade. The transaction by which Iselin & Co. step out of the picture as a knit goods mill agent and Haight & Co. take a more prominent place in the picture, is viewed as probably the most important change in the underwear and knitted outerwear primary markets in 1931.

A NEW YORK resident buyer of sweaters for a group of retailers got into newspaper print a few weeks ago with a statement that he was advising his trade of an offering of pure worsted sweaters with a Jacquard border for $8.50 a dozen. This drew the fire of a manufacturer of sweaters conforming to the resident buyer's description, which he sells to jobbers for $12.50 a dozen. He was kept busy for a time "advising his trade" that not a manufacturer operating an American mill could produce a pure worsted sweater with Jacquard border for the $8.50 price, and that such garments, if in distress, could be sold readily at auction for $9 to $10. The incident, which has been pretty well aired in the knitted outerwear trade, emphasizes the desirability of confirmation of prices sponsored by buyers.

Among the Knitting Mills

ANNOUNCEMENT was made recently concerning the details of the new plant for manufacturing full-fashioned hosiery which is being erected at Loudon, Tenn., by Charles H. Bacon Co., which already has several seamless hosiery and finishing plants. Twenty-seven full-fashioned machines, purchased from a plant in New Jersey, will be installed to give a capacity of about 2,500 dozen a week. The building is to be of saw-tooth roof construction, brick building on concrete base, one story, 100 x 170 feet, with steel sash windows. Finishing of the hosiery made here will be done in the established plant of the company at Loudon

The addition being erected by the Hudson Silk Hosiery Co., Charlotte, N. C., will increase the floor space by about 31,000 feet. In this building will be placed a throwing department and the manufacturing operations previously carried out in a branch plant elsewhere in Charlotte.

Report states that 14 additional full-fashioned machines are being added to the plant of the Lengel-Fencil Co., Anniston, Ala., increasing the capacity by 70 per cent.

An installation of Fletcher twisters has been purchased through W. A. Kennedy Co., Charlotte, N. C., by the Mock-Judson-Voehringer Co., Greensboro, N. C.

A $100,000 addition to the Utica Knitting Mills, Anniston, Ala., will be made, financed by the Avalon Building Company.

The Artcraft Silk Hosiery Company of Philadelphia have purchased through H. M. McCord, 100 East 42nd St., New York, the throwing plant of the Perkasie Silk Co., of Perkasie, Pa.

BONE-DRY UNSHRINKABLE WELL-FINISHED

HARD MAPLE HOSIERY BOARDS

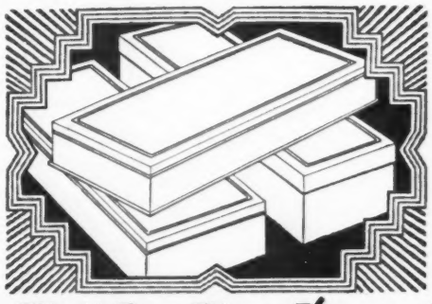
Give you that much desired finish that cannot be obtained from any other than wooden boards.

You get the length, lustre, *feel* that the goods should have.

Our special finish is highly recommended for silk and wooden boards.

We serve the best mills—send a request for list and same will be forthcoming.

JOSEPH T. PEARSON & SON CO.
Manufacturers
Kensington and E. Boston Avenues
PHILADELPHIA, PENNA.



"Individualized" *paper boxes*
for all TEXTILE PRODUCTS

Old Dominion paper boxes are distinctly different from any boxes you have ever used. In them you get that certain "individuality" that makes them stand out above all others. Especially made to fit your products and printed in any color combination with your trade-mark or special design. Our five centrally located Southern plants can give you a quick service and low freight rates. Write our nearest plant for samples and quotations.

OLD DOMINION BOX COMPANY, INC.
Lynchburg, Va.

Winston-Salem, N. C. Burlington, N. C. Ashboro, N. C. Charlotte, N. C.

quality OLD DOMINION Paper Boxes

The YARN MARKET

Philadelphia, Pa., December 16, 1931.

COTTON yarn prices were little affected by the December crop estimate and condition report of the Department of Commerce, and sales evidently were adjusted to buyers' assumed requirements prior to their year-end inventories. Neither the November nor December report issued by authority of the government seemed to influence consuming manufacturers one way or the other in their attitude toward yarn. It became evident long before the final transactions for the winding up of the 1931 commitments by manufacturers that they were planning to take on no items for their inventories that need not necessarily be included in their showing of assets, in which particular they were acting in perfect accord with buyers of practically every item in the textile category—preparing to make the best possible showing as to holdings of either raw materials or finished products.

There were the usual number of instances of commitments for January dating, whereby sizeable quantities of yarns disappeared from the inventories of sellers and did not appear in the inventories of buyers. Manufacturers who regarded yarns a profitable buy at the December prevailing prices, and sellers willing to speculate on the short side, seemed to have little difficulty in agreeing upon trading terms. There was evident a desire on the part of weavers to experiment with novelty yarns, and changes in shipping details toward the end of the year kept spinners and their Philadelphia representatives constantly on their toes trying to accommodate weavers who were sampling a variety of counts and mixtures, the idea being to get out of the rut of staples in which competition was keen.

Prices declined to the lowest level in 35 years or more, according to seasoned traders, 20s/2 warps being offered at 15½ cents and buyers bidding a half cent less. There were offers also of 19 cents for 30s/2 and some sellers inclined to accept, the apparent intention of buyer and seller being to manipulate for light inventories. Sellers were free to admit it was a price market, and hopes of stemming the tide flowing toward a break in asking prices were shattered well before the end of December.

Features of the carded yarn market situation toward the end of December were the call for shipments on January dating and less of requests for deferred deliveries than ordinarily. The inference was that manufacturers had virtually no yarns in stock and were determined to have none, of moment, in their inventories. Judging from low stocks in consuming mills, the extent to which manufacturers deferred commitments, and the interest in January deliveries, sellers felt there was in prospect a fair amount of business, likely to be placed in January.

Combed yarn producers are believed to have passed up an opportunity to improve on the weights of yarns for early 1932 consumption. Interest in combed was not as keen as ordinarily in a buyers' market, due, it is alleged, to the tardiness of spinners in adjusting their prices to the lower level of values as indicated by quotations on carded yarn, 10s on cones being available at 13 cents and finer numbers held for the usual dime differential, which, however, seemed to narrow in the field of finer counts.

Philadelphia yarn interests look for price to make the market in 1932.

Philadelphia quotations on December 18th follow:

Single Skeins.

4s to 8s	12½	10s	13
12s	13½	14s	14
16s	14½	20s	15½
24s	17½	26s	18½
30s	19½		

Single Warps.

10s	13½	12s	14
14s	14½	16s	15
20s	15½	26s	18½ @19
30s	19½ @20		

Two-Ply Skeins.

8s	13	10s	13½
12s	14	14s	14½
16s	15	20s	15½
24s	17½ @18	26s	18½ @19
30s	19½ @20	40s	26

Two-Ply Warps.

10s	14	12s	14½
14s	15	16s	15½
20s	15½ @16	24s	17½ @18
26s	18½ @19	30s	19½ @20
40s	26		

Frame Spun Carded Yarn on Cones.

8s	12½	10s	13
12s	13½	14s	14
16s	14½	18s	15
20s	15½	22s	16½
24s	17½	26s	18½
30s	19½	40s	26
30s dbl. carded			21½ @22
30s tying in			18½ @19

Carpet Yarns.

8s and 9s white warp twist	13	@13½
8s tinged tubes	12½ @13	
8s part waste	11	@11½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	22	20s	24
24s	26	30s	29
40s	32	50s	35
60s	39	70s	49
80s	59		

Single Combed Peeler Yarns on Cones.

18s	21	24s	23½
30s	27	36s	29
38s	30	40s	31
50s	35	60s	39
70s	49	80s	59

Mule Spun Carded Yarn on Cones.

10s	19	12s	19½
14s	20	16s	20½
18s	21	20s	21½
24s	24	28s	25
30s	26	40s	34

Mule Spun Combed Peeler Yarn on Cones.

10s	24	12s	25
14s	26	16s	27
18s	28	20s	30
22s	31	26s	32
28s	33	30s	34
36s	37	38s	39
40s	40		

Tinged Insulating Yarn.

8s-1	12½	8s-2	12½
12s-1	13	12s-2	13
10s-1	13½	10s 2	13½
		20s-2	15

Durene

REG. U.S. PAT. OFF.

NATURAL BLEACHED COLORED

AND MERCERIZED

YARNS

Main Office

123 South Broad Street

PHILADELPHIA

Manning St.
HIGH POINT, N. C.

261 Fifth Ave.,
NEW YORK

418 Franklin St.,
READING, PA.

222 North Bank Drive
CHICAGO, ILL.

James Building
CHATTANOOGA, TENN.

38 Chauncy St.
BOSTON, MASS.

HAMILTON, CANADA

LOS ANGELES

Mills

CHESTER, PA. **BELMONT, N. C.**

ABERFOYLE A MANUFACTURING

COMPANY

REPRESENTATIVES IN ALL THE PRINCIPAL COUNTRIES OF THE WORLD

SIZING SEYDEL-WOOLLEY CO. FINISHING

WARP SIZING SPECIALISTS

SCIENTIFICALLY PREPARED TEXTILE CHEMICALS

A CONCERN IS KNOWN BY THE CUSTOMERS IT KEEPS—

FINISHING ATLANTA GA. SIZING

SIZING FINISHING

Trasol

REG U.S.PAT. OFF.

Sole Agents United States and Canada—

JOHN P. MARSTON COMPANY

247 ATLANTIC AVE. BOSTON, MASS.

a Key TO A ROOM AT THE NEW BISMARCK HOTEL

Opens the door to comfortable beds that invite sleep . . . delicious food that tempts tired appetites . . . and cheerful service throughout.

Send for Booklet with Downtown Map
Rooms with bath, $3.50, $4, $4.50, $5 and $6
Rooms without bath, $2.50

NEW BISMARCK HOTEL CHICAGO

In the heart of Chicago

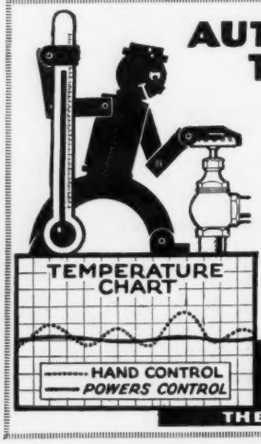
RANDOLPH AT LA SALLE

WOODWARD, BALDWIN & CO.

DRY GOODS

Commission Merchants

43-45 WORTH STREET, NEW YORK



AUTOMATIC TEMPERATURE CONTROL

FOR—Weave Rooms, Spinning and Carding Rooms; also temperature regulators for Dyeing, Drying, Slashing, Wool Scouring, etc. *Write for Bulletins.*

2739 Greenview Ave., CHICAGO
231 E. 46th St., NEW YORK
Also 41 other cities

THE POWERS REGULATOR CO.

Weimar Bros.

Phone Connections
Works: 2046-48 Amber Street
PHILADELPHIA, PA.

MANUFACTURERS OF
Cotton Mercerized Tapes, Spool Tapes, Bindings and Narrow Fabrics for Underwear and other Trades.

ARCY

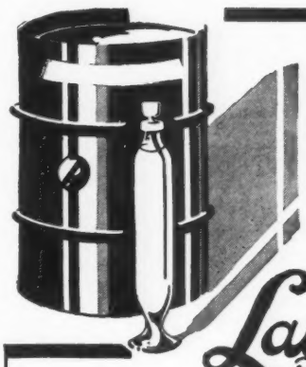
is not supposed to replace the usual softeners used in a size mix, but when used with ordinary thick boiling pearl starch in the proportion of approximately 1% of the weight of the starch,

Completely Liquifies the Starch

thus producing practically a non-congealing thin size solution, with marked penetrating and binding properties.

DRAKE CORPORATION

Norfolk, Va.



YOU CAN SAVE as much as 1/3 of your Kier boiling time with Laurel Brand Soluble Pine Oils

SPECIAL formulae have been developed and proved in use to take care of cotton, Durene, and mixtures of these with other fibres.

Write for information, describing the product to be handled.

Laurel Soluble Pine Oils, Pine-Castor Oils, for Silk, Rayon, Wool, Cotton, Celanese, Tubize, etc.

Laurel Soap Mfg. Company

INCORPORATED

WM. H. BERTOLET & SONS

2600 EAST TIOGA STREET :: :: PHILADELPHIA

Textile Treatment Specialists since 1909

THE KALI CO. ARE THE ORIGINAL PIONEERS OF PINE OIL PRODUCTS.

If you have any problem that can be solved through the use of Pine Oils or their compounds, write to our Research Department and get the facts we can give you out of our long experience in our laboratory and through tests we have made in a practical way in textile plants all over the country.

Use *KALI KIER OIL* in both the kier and in boiling out. It has been outstandingly successful for 18 years. Also popular for the same purposes is *KALPIKIER*. Our *KALPINOL* is an ideal sulphonated Pine Oil for penetration and leveling of shades.

Use our *KALPISCOUR* for wool scouring and fulling, and our *ART SILK BOIL-OFF OIL* for boiling off rayon.

Free—To You

"Popular Industrial Chemistry"
By James A. Branegan,
President Kali Manufacturing Co.
Write for your copy today.

The KALI Mfg. Co.
Manufacturing Chemists
1410 N. Front Street, Phila., Pa.

SOLVAY

TRADE MARK REG U S PAT. OFF.

PRODUCTS

SOLVAY products are sold on the basis of *actual* Alkali content.

SOLVAY 58% Soda Ash *contains* 58% of *actual* sodium oxide.

SOLVAY 76% caustic Soda *contains* 76% *actual* sodium oxide.

Specify SOLVAY—the standard of SODA since 1881.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

61 BROADWAY NEW YORK

SOUTHERN DISTRIBUTORS:

Charles H. Stone, Charlotte, N. C.
Woodward Wight & Co., New Orleans, La.
J. T. Sudduth & Co., Birmingham, Ala.
Miller-Lenfestey Supply Co., Tampa, Miami and Jacksonville, Fla.
Burkart-Schier Chemical Co., Chattanooga, Tenn.

The Word

SUNFAST

means

DYED

with

CHLORANTINES

•

Put your dyeing problems up to us

•

Dyes for Master Dyers

•

Sole Representatives in the United States for the
SOCIETY OF CHEMICAL INDUSTRY IN BASLE
Basle, Switzerland

Sole Selling Agents for
DOW'S INDIGO and MIDLAND VAT BLUES

Ciba Co. Inc.
GREENWICH and MORTON STREETS
NEW YORK

BRANCHES
GREENVILLE, S.C. · BOSTON · CHICAGO · GREENSBORO, N.C.
PHILADELPHIA · PROVIDENCE · SAN FRANCISCO
Ciba Co. Ltd., Montreal, Canada

THE grizzled sales manager can spot, at a glance, an extra ante in the swindle sheet. He is reasonable, too, about legitimate expense accounts. In Philadelphia, for instance, he knows that three or four dollars a day will buy a star salesman the comforts of a king . . . Here at the Hotel Pennsylvania, near the trains, but 10 minutes away from the dust and din are garage facilities, unrestricted parking area, good food in the Coffee Shop or main dining room; and a fresh cool river-blown breeze to tone up the travel tired . . . Yes, sir, ... The Pennsylvania is a little more like home. Ask the sales manager . . . he knows.

DANIEL CRAWFORD, Jr., Mgr.

HOTEL PENNSYLVANIA
[illegible] & CHESTNUT ST. · PHILADELPHIA

Improved Equipment and Processing in the Manufacture of

EAGLE STARCH

has achieved

1—GREATER UNIFORMITY of moisture content and fluidity of paste. While Eagle Starch always has been approved for its uniform quality, the new Eagle Starch is controlled within still narrower limits. Every package is absolutely uniform in moisture and fluidity.

2—REDUCED SEDIMENT or residue. Especially designed equipment has resulted in the elimination of practically all sediment—which means smoother, cleaner size. Try a "creaming" test.

3—ABSENCE OF SOLUBLE SUBSTANCES which have no starch value. By additional washings, soluble impurities have been removed from the new Eagle Starch.

4—CLEANSING OF THE AIR used for drying starch is an innovation. In manufacturing the new Eagle Starch, the finest particles of dust and dirt that are in the air are removed prior to using this air for drying Eagle.

•

For best results, always be sure that starch is thoroughly "creamed" by stirring with cold water before admitting steam. For further information, please write

CORN PRODUCTS REFINING CO.
17 Battery Place, New York, N. Y.

Get *Feel and Handle* Exactly Right *and* Save 50% *in Finishing Cost!*

With Houghton's SOL LUSTRE No. 3, you not only can get exactly the feel and handle you want but, if you have been using 50% sulphonated castor oil, you can save about 50% in your finishing cost.

Order a barrel of SOL LUSTRE No. 3 and make the comparative test yourself. You will find that half a pound of SOL LUSTRE No. 3 will do as much work as a pound of 50% sulphonated castor oil and, at the same time, give you exactly the feel and handle called for in your specifications.

SOL LUSTRE leaves no odor; does not oxidize, yellow, or turn rancid; and is unexcelled for present-day operating conditions—high speeds, high drying temperatures, volume production methods.

Mills that are getting reduced finishing costs with SOL LUSTRE include manufacturers of

Shirtings — Broadcloths — Sheetings
Mercerized Yarn — Printed Hosiery Yarn
Cotton Flannels and others fabrics

Ask the Houghton Man to demonstrate in *your* plant—under *your* conditions.

•

E. F. HOUGHTON & CO.
PHILADELPHIA-CHICAGO-DETROIT

And All Over the World

BOSSON & LANE

Manufacturing Chemists
Established Jan. 1, 1895
Works and Office, Atlantic, Mass.

High Grade Castor Oil Products

Sulphonated-Saponified

Soluble Oil — Para Soap Oil
Turkey Red Oil — Castor Soap Oil
Soluble Pine Oil — B & L Bleaching Oil

PENTRALYN, a superior assistant for Beam, Spool, Bobbin and Package Dyeing.

Bleach Softener CSO, Finishing Sizings and Softeners.

VICTROLYN, the economical assistant in warp sizing. Penetrating, Lubricating and wholly efficient.

B & L Bleachers' Bluings and Violet Tints

GOOD MONEY VALUES - FREEDOM FROM WORRY

VICTOR MILL STARCH

The Weaver's Friend

It boils thin—it penetrates the warp—increases breaking strength and carries the weight into the cloth. Being thoroughly washed free of gluten and other foreign matter it gives a bleach and finish to the goods that you can get from no other starch.

A trial order will convince you that VICTOR STARCH has no equal on the market.

THE KEEVER STARCH COMPANY, Columbus, Ohio

Southern Agent: MR. DANIEL H. WALLACE, Greenville, S. C.

If you are not already using VICTOR STARCH call on our representative for a demonstration at your convenience.

Good Cones Don't Just "Happen"

Unusual service in cones doesn't just "happen". It is definitely created; born of a purpose in the minds of certain men.

SONOCO PRODUCTS are always an evidence of such purpose.

To a growing number of textile manufacturers SONOCO PRODUCTS are a basic policy—not merely a choice of equipment.

And the fact that so many mill employees like SONOCO Brand is instantly mirrored in bigger and better production.

Let Sonoco know your requirements.

Mexican Representative:
Compania de Industria y Comercio, S. A.
Ave. Isabel La Catolica, 59
Mexico D. F., Mexico

Canadian Representative:
W. J. Westaway Co., Ltd.
Hamilton, Ont.

English Representative:
Textile Paper Tube Co., Ltd.
Romiley, Nr. Stockport, Eng.

SONOCO PRODUCTS COMPANY
HARTSVILLE, S. C.

MANUFACTURER

CONES, TUBES, CLOTH-WINDING CORES AND SPOOLS,

Velvet Surface Cones, Underclearer Rolls, Dytex Tubes, Etc.

Mills: Hartsville, S. C., Rockingham, N. C. and 709 W. Front St., Plainfield, N. J.
New England Office: 512 Book Store Bldg., New Bedford, Mass.

Spanish Representatives:
Sobre y Cia, S. L.
Fernandina No. 22
Barcelona, Spain

China Representatives:
Anderson, Meyer & Co., Ltd.
4, 5, 8 Yuen Ming Yuen Road
Shanghai, China

Australian Representatives:
Frank Lee & Co. Pty., Ltd.
Melbourne, and Sydney

Which kind of dryer are you going to install . . .

good *or* questionable?

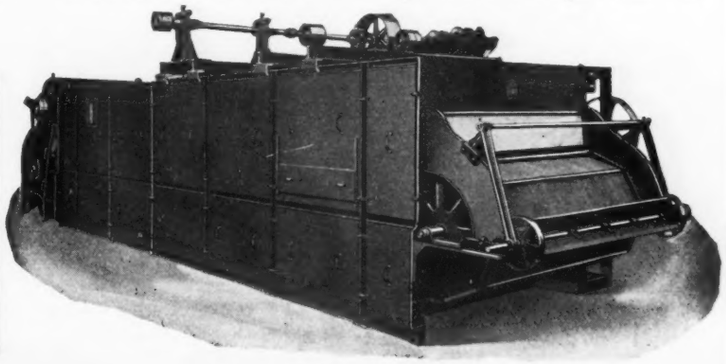
The moment you install a dryer in your mill it becomes a part of your organization, an important part of your work. Yours is the responsibility for its performance.

You can always be sure of the efficiency of Sargent Cotton Stock Drying Machines. In every way they are representative of the knowledge and skill Sargent has gained in the manufacture of textile machinery. They reflect the manufacturing ability which has made the name Sargent known and respected throughout the textile world. Sargent's reputation backs these dryers, assures entirely satisfactory performance. Write for information.

C. G. SARGENT'S SONS CORP. GRANITEVILLE, MASS.

FRED H. WHITE, So. Agent, Charlotte, N. C. R. C. JEFFERSON CO., Phila. Agent, Drexel Bldg., Phila., Pa.

SARGENT TEXTILE MACHINERY



ALLIGATOR
TRADE MARK REG. U.S. PAT. OFFICE
STEEL BELT LACING

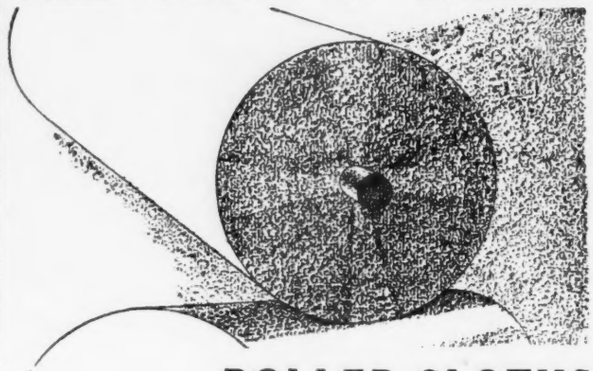
Distinctive Among Belt Lacings

Only Alligator Steel Belt Lacing combines the features of (1) a smooth, flexible, rocking joint (2) great surplus strength (3) preservation of the belt ends and (4) easy, rapid application with a hammer as the only tool. It compresses the belt end in a powerful vise-like grip. No holes to punch. Often lasts the full life of the belt. Suitable for all types of belting. Eleven sizes. Made also in Monel Metal. Sold throughout the world.

FLEXIBLE STEEL LACING COMPANY
4619 Lexington Street Chicago, Illinois
In England at 135 Finsbury Pavement, London, E. C. 2

"NEVER LETS GO"

KENYONS *of* BURY



ROLLER CLOTHS
COTTON BLANKETS
LAPPINGS
PALMER MACHINE BELTS
FOR CALICO PRINTERS, ETC.
CLEARER CLOTHS
SIZING FLANNELS
ROLLER CLOTHS FOR COTTON SPINNERS AND MANUFACTURERS.

The whole of Kenyon's Machinery Clothing is made throughout in their own mills, from raw material to finished article.
Manufactured by JAMES KENYON & SON, LTD.
Derby Street Mills, Bury, Lancs, England.
Founded 1714.

U. S. AGENTS,
HURLEY-JOHNSON CORP.
25 Walker St., New York

MACHINERY CLOTHING

Hotels of Distinction

mayfair
8th and st. charles

Lennox
9th and washington

in st. Louis

IN the center of shopping and theatre district. Bed lamp, floor lamp . . . hand-set telephone, fans, circulating ice water, in every room. Club meals, Garage Service, Coffee Shop. Room and Bath . . . . $3.00 up.

DOUBLE HEAD
BOBBINS AND SPOOLS
INCLUDING JACK SPOOLS WITH WOOD, STEEL OR FIBRE HEADS

JACK SPOOLS
Common, Fibre Head
Steel Head, 3-ply Stock
Drawing Spools
Roving "
Twister "
And many others

M. H. PARKS COMPANY, WINCHENDON, MASS.

REG. U. S. PAT. OFF.
ROLLER CALF
R. NEUMANN & CO.
Hoboken, N. J.
Direct Factory Representatives in the South
PEARSE SLAUGHTER BELTING CO., GREENVILLE, S. C.

ADOLFF
Card Room Bobbins
COMPRESSED HARD PAPER

Slubbers — Intermediate — Speeders, with Inside Metal Protection. For Long Satisfactory Service. True Running, do not Warp or Splinter. Favored by Executives as well as Operatives.

Samples and Prices From

J. I. BERNITZ
47 WEST ST. NEW YORK CITY
MACHINERY & SUPPLIES

SPOOLS
TWISTERS
SPINNING
BOBBINS

ALL ADOLFF PRODUCTS HAVE THIS MARK
Look For It

SILK SPOOLS
COPS & QUILLS
PERFORATED
DYEING TUBES

Canadian Branch
11 Wellington St. E.
Toronto, 2. Ontario, Canada

The Extra-wear Spinning Ring

DIAMOND FINISH

"NEW rings can be tested,
but only OLD rings can PROVE anything!"

"The only conclusive test I know of is to run a batch of rings in actual use until they wear out. No tests on new rings mean much to me, stacked up against my years of EXPERIENCE with the long life and smooth running of DIAMOND FINISH Rings."

Free samples upon request

Whitinsville (Mass.) SPINNING RING CO.

Devoted to making "DIAMOND FINISH" Spinning Rings Solely Since

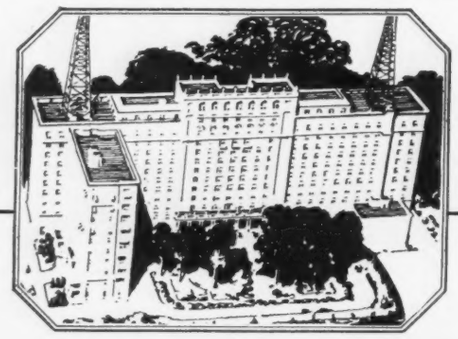
1873

B. S. ROY & SON CO. MADE IN AMERICA TEXTILE GRINDING MACHINERY WORCESTER, MASS. U.S.A. SHIPPED THE WORLD OVER

ROY Card Grinders produce immediately remarkable improvements in stock . . . increased efficiency and quality in subsequent processes . . . through the spinning.

B. S. ROY & SON CO.
Established 1868
WORCESTER, MASS., U. S. A.

ROY TEXTILE GRINDING MACHINERY



"Two Best Things..."

One of our friends asked a traveling man from New York why he always stopped at the Atlanta Biltmore.

"Well," he replied, "it's the finest hotel in the entire South. The service is perfect. I enjoy the beautiful surroundings. It is one of the few large city hotels where traffic or other street clamor doesn't prevent sound sleep. But to me the *two best things* about the Biltmore are its friendly atmosphere and reasonable rates.

"From the manager on down to the bell boys I always receive a cordial hospitality that makes me look forward to my Atlanta trips.

"As for the rates, I don't know where one can get at a lower price an outside room as large and beautifully furnished, nor where else such delicious and perfectly served food can be had so reasonably."

Make your next trip to Atlanta a most enjoyable one . . . stop at the Atlanta Biltmore. 600 outside rooms, each with bath and circulating ice water. Located half way between the Terminal and Peachtree Stations and but a 30c taxi fare from Five Points, the busiest down-town business intersection. A convenient location without inconvenient city noises.

If you like golf, privileges on the finest courses are granted our guests. If interested in radio, a special elevator takes you to the Biltmore studios of WSB.

May we see you soon at the Atlanta Biltmore?

Rates: Single, $3, $4 and $5.
Double, $5, $6, $7 and $8.

ATLANTA BILTMORE

"The South's Supreme Hotel"

Cotton Cleaning AT ITS BEST

The highest type of cotton cleaning known to the industry is incorporated in the CENTRIF-AIR ADJUSTABLE COTTON CLEANING SYSTEM. It is the only equipment in the United States that makes these three separations:

1—Mechanical and centrifugal force to open cotton and remove dirt.

2—Use of air to take out light dust and pulverized leaf which is not removable by any beating process.

3—Use of centrifugal force, air and gravity to free opened cotton from rocks, iron, sticks, seeds and other material heavier than the fibre.

Results are 50% more efficient with the CENTRIF-AIR ADJUSTABLE COTTON CLEANING SYSTEM. Write for information.

THE CENTRIF-AIR MACHINE CO., Inc.
ATLANTA, GA.

Centrif-Air
ADJUSTABLE COTTON CLEANING SYSTEM

PAGE-MADDEN CO. Inc

277 Ralph Ave.,
Brooklyn, N. Y.

SUPERIOR TEXTILE PORCELAIN

Longer Life for short centers because it is more pliable ... and

More Power for short centers because of its better pulley-gripping surface

DUXBAK LEATHER BELTING

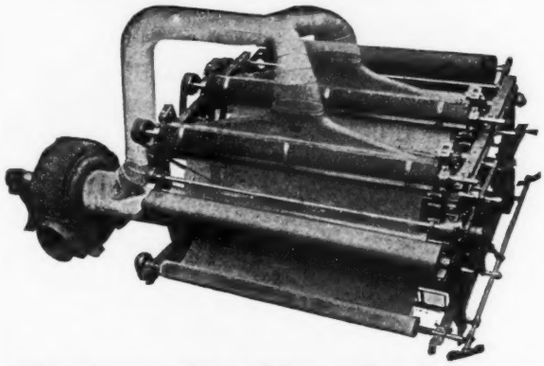
Chas. A. Schieren Company
30 FERRY ST.
NEW YORK, N.Y.

HERMAS

AUTOMATIC CONTROL ENABLES ONE OPERATOR TO RUN A BATTERY OF SHEARS.

ONLY ONE OF THE REASONS WHY THE PRODUCTION OF OVER 100,000 COTTON, SILK AND RAYON LOOMS IS BEING TRIMMED ON

HERMAS Shears



Hermas Machine Company
Warburton Ave., Susquehanna R.R.
Hawthorne, N. J.

Southern Representatives:
CAROLINA SPECIALTY CO.
CHARLOTTE, N. C.

European Representatives:
TEXTILE ACCESSORIES, LTD.
MANCHESTER, ENG.

New England Representative:
ROBERT E. STEERE, PAWTUCKET, R. I.

A Right Size for Every Mill

There are eight different sizes in the FINNELL line ranging in price from $75 to $875. Large open areas might need the largest. Small congested spaces might need the smallest. The average mill might need one in between. Let us survey your floors and help you select the one that will do the best work for you at lowest cost. For particulars address FINNELL SYSTEM, INC., 1301 East St., Elkhart, Ind.

FINNELL

Est. 1906

ELECTRIC FLOOR MACHINE

Lockwood Greene Engineers, Inc.

Mechanical - Electrical
Structural Engineers

Plans, Specifications, Supervision of Construction, Machinery Lay-outs, Location Studies, Manufacturing Reports, Appraisals, for Industrial Plants

NEW YORK BOSTON CHICAGO
CLEVELAND SPARTANBURG

This Harness Offers 6 Important Advantages

Try it at our risk; sign and mail the coupon below.

Emmons CHAFELESS CORD Harness represents a new and important advance in harness making . . . gives you a harness that offers 6 important advantages over ordinary harness. We would like to have you try a set at our risk.

Here are the 6 advantages which CHAFELESS CORD offer the man responsible for your weaving:

1. Notable improvement in the "cover" of fine and medium weaves;
2. Less "fly";
3. Reduction in warp breaks and resulting loom stops;
4. Longer wearing of the harness eyes;
5. Enhanced flexibility of the harness;
6. Humidity proof qualities.

These advantages have been achieved through unique manufacturing processes. CHAFELESS CORD is the result of three generations of harness making; the product of the most progressive cotton harness manufacturer in the world.

Let us send you a set of this new CHAFELESS CORD Harness to try . . . at our risk. Put it in a loom and see the results in improved quality and lower weaving costs. The coupon below brings you a set to try.

Accept This Offer

Put this harness on your loom and run it continuously for thirty days. Check up on the 6 advantages above. If you do not find this the most satisfactory harness you have ever used, return it and we will cancel the charge.

We are willing to make this offer because we believe you will come to prefer CHAFELESS CORD over any other type of cotton harness made. Over 150 mills are now using this improved harness.

Try a set at our risk, without any obligation if it doesn't do all that we say it will. Just sign and mail the coupon below for your trial set of CHAFELESS CORD HARNESS.

EMMONS LOOM HARNESS CO.
LAWRENCE, MASS.

Emmons Loom Harness Company
Lawrence, Massachusetts

Gentlemen: Kindly send me a set of CHAFELESS CORD Harness to try. If I am not satisfied I will return the set within 30 days and you will cancel the charge. Otherwise, you may invoice us on your regular terms. *Specifications are herewith attached.*

Name_____ Title_____

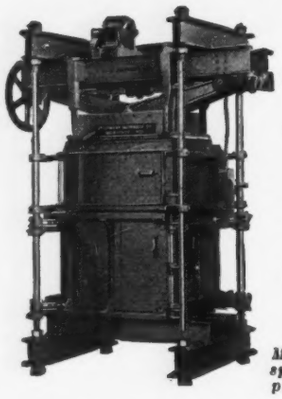
Mill _____

Address _____

LOGEMANN

Hand-Belt-Electric-Hydraulic

Baling — Presses



For Waste—

Hand operated Balers—
Deep-box power Balers—
Hydraulic Balers—

For Finished Goods—

Hand operated Balers—
Power toggle - lever Balers—
Hydraulic high-density Balers—

For Yarns—

High - density power Balers—

Model 26-MS. Power Baler specially designed for export yarn baling.

There is a LOGEMANN baler for every purpose.

Write for details specifying your needs.

LOGEMANN BROTHERS CO.

3102 Burleigh St., Milwaukee, Wis.

AN UP-TO-DATE PRINTING PLANT

equipped with modern machinery and a staff of competent workmen, solicits, thru this publication, a trial order on your printing needs.

We have built a reputation that is known over the entire Southy by our special attention to the minutest detail.

We are more than ready to answer any question that relates to your printing problems.

Write us and let us quote you on anything from a postal card to a full bound book.

The A. J. Showalter Co.

PRINTERS AND PUBLISHERS

DALTON GEORGIA

Pays You Twice its Cost

A Loper contract contains the guarantee that its service will pay you at least twice the amount it costs you.

Let us give you references that prove we accomplish even more than we guarantee.

The Loper Cost System complies with the Basic Recommendations of Cotton Textile Institute.

Ralph E. Loper & Co.

INDUSTRIAL ENGINEERS

Specialists in Textile Costs Over 19 Years

FALL RIVER, MASS. GREENVILLE, S. C.

MILLER LINE

Est. 1896

TYPEWRITER RIBBONS AND CARBON PAPERS

MADE TO OVERSERVE—NOT TO UNDERSELL

Manufactured by

THE MILLER-BRYANT-PIERCE COMPANY

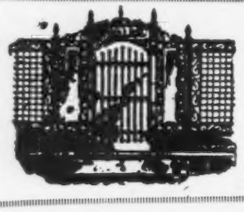
AURORA, ILLINOIS

GEORGIA BRANCH: 219-223 WALTON BLDG., ATLANTA

FOR SALE

We have recently purchased Dye House Machinery consisting of One Six Warp Cocker Continuous System Warp Indigo Dyeing Equipment, and Two Morton Beam Dyeing Machines complete. Condition of all of this Machinery guaranteed equal to new, and can be purchased and installed by us at a low price.

COCKER MACHINE & FOUNDRY COMPANY
Gastonia, N. C.



WIRE RAILINGS
WINDOW GUARDS
WIRE CLOTH

Established 1835

DUFUR & CO.

509 West Franklin St. Baltimore, Md.

Practical Overseer and Superintendent

Age 37, married, 12 years experience on all classes of cotton yarn and cloth, including sheeting, drills, sateen, duck, twills, etc. Now employed; references, desire wider opportunity. Address Box 85, care of COTTON, Grant Bldg., Atlanta, Ga.

PRACTICAL MILL CONSULTANTS

The Textile Development Co.

Sidney S. Paine, *President*

80 Federal St., Boston, Mass.

1001 Jefferson Standard Bldg., Greensboro, N. C.

FOR SALE

1—American 30 x 36" Monel Dyeing Machine, with "Y" horizontal partition, silk finish.
1—18 Spindle Patent Cone Altemus Winder, with collapsible swifts for art. silk.
1—Stetton Steam Dry Form, double table, with 24 adj. Stetoe half hose aluminum forms.

This equipment is practically new, and is offered at a substantial reduction.

DRAKE CORPORATION, Norfolk, Va.

For Quick Delivery on any kinds of

TAGS

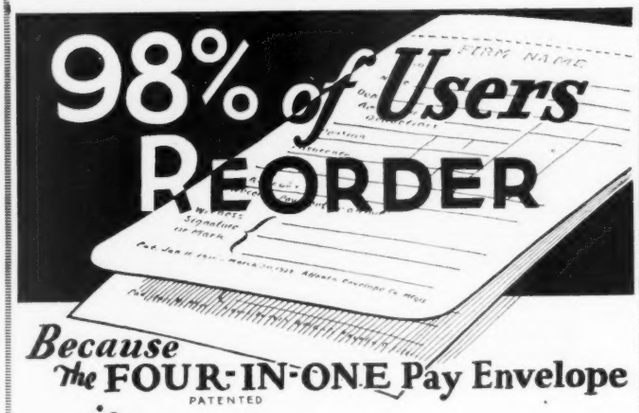
System, Piecework, Trailor, Factory, Labeling, etc.

CALL UPON **HAYWOOD**

Southern Representative—
SOUTHERN SHIPPERS SUPPLY CO.
Atlanta, Ga.

HAYWOOD TAG CO.

Factory at
LAFAYETTE INDIANA



Because the **FOUR-IN-ONE** Pay Envelope
PATENTED
is:

1. A pay envelope.
2. A time and wage statement.
3. A deduction statement.
4. An employee receipt.

ATLANTA ENVELOPE COMPANY
ATLANTA, GEORGIA

Please send us samples of the Four-in-One Pay Envelope.
Firm .....
Name .....
Address .....

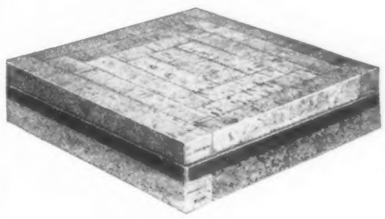
It has been proven time and again that there is nothing better than pure cork board for insulating textile mill roofs. For this service Mundet "Jointite" Cork Board is made in all standard sizes and thicknesses.

"Everything Made of Cork"

As a regular reader of Cotton you know that Mundet's specialty is Cork Insulation. We have been manufacturing cork products since 1865. You have seen many photographs of actual installations of Mundet's "Jointite" Cork Board under all sorts of conditions, especially for roof insulation. You have seen thousands of feet of cold piping insulated with Mundet "Jointite" Cork Pipe Covering. We have concentrated on those products in Cotton because we figured that you are not so much interested in our other cork products.

In this advertisement, though, we are showing one of Mundet's cork products which we have never mentioned before—our Natural Cork Isolation Mats—ideal for deadening vibrations and noise in the textile plant. There is nothing equal to natural cork for that purpose. If you are interested we will gladly tell you all about it.

Whatever your insulation or isolation problems may be, don't hesitate to put them up to Mundet's Practical Engineers. We have branches and carry stock in all the leading cities of the United States and Canada—listed completely in last month's issue. We handle every detail from beginning to end, thereby saving much money for our customers. No job too large, too small, or too far away.



A typical Mundet Cork Mat used for deadening machine vibrations and noise. Natural cork, for this purpose, is superior. Made in all sizes and thicknesses.

MUNDET CORK CORP.
Affiliated with L. Mundet & Son — Established 1865
450 Seventh Ave., New York City

Advertisers' Index

A

Aberfoyle Mfg. Co. 128
Acme Steel Co. 10
Akron Belting Co. 87
Aldrich Machine Works 2
Allis-Chalmers Mfg. Co. 16
American Enka Corp. ..... *
American Moistening Co. ... 120
American Telephone & Telegraph Co. ..... *
Arguto Oilless Bearing Co. .. 137
Arkansas Co., Inc. 20
Armstrong Cork Co. 4
Arnold Hoffman & Co., Inc... 82
Atlanta Biltmore Hotel 132
Atlanta Envelope Co. 135
Atlanta Harness & Reed Mfg. Co. 72
Atwood Machine Co. 86

B

Barber-Colman Co. ....Front Cover and 72
Barber Mfg. Co. 91
Barkley Machine Works..... 90
Bedaux Co., Chas E. 67
Bernitz, J. I. 131
Bond & Co., Chas. 88
Borne Scrymser Co. ..... *
Bosson & Lane 128
Brinton Co., H. 117
Buffalo Electro Chemical Co., Inc. 78
Butterworth & Sons Co., H. W. 3

C

Callaway Mills 91
Cameron Machine Co. ..... *
Centrif-Air Machine Co., Inc. 132
Ciba Co. 126
Clinton Corn Syrup Refining Co. 72
Corn Products Refining Co... 127
Crompton & Knowles Loom Works 7

D

Dayton Rubber Mfg. Co. ... 76
Diagraph Stencil Machine Corp. *
Diamond Alkali Co. 22
Dixie Mercerizing Co. 111
Drake Corporation 125
Dronsfield Bros., Ltd. 85
Draper Corporation 1
Dufur & Co. 134
Dupont de Nemours & Co., Inc., E. I. ..... *
Dupont Rayon Co. ..... *

E

Eaton, Paul B. 90
Eclipse Textile Devices Co... 79
Emmons Loom Harness Co... 133
Ernst & Ernst 72

F

Fidelity Machine Co. 100
Finnell System, Inc. 133
Fisher Governor Co. 137
Fletcher Works ..... *
Flexible Steel Lacing Co. ... 130
Foster Machine Co. 9

G

Gastonia Brush Co. 90
Gastonia Roller Flyer & Spindle Co. 90
Gastonia Textile Sheet Metal Works 90
Gates Rubber Co. ..... *
General Dyestuff Corp. 70
General Electric Co. ..... *
General Electric Vapor Lamp Co. ..... *
General Fibre Products, Inc. .....Inside Back Cover
Goodrich Rubber Co., B. F... *
Goodyear Tire & Rubber Co. 61
Grasselli Chemical Co. ..... *

H

H. & B. American Machine Co. 63
Halton's Sons, Thomas .... *
Haywood Tag Co. 134
Heiss Hotel System 130
Hemphill Co. 98
Hercules Powder Co., Inc.... *
Hermas Machine Co. 133
Hotel Pennsylvania 126
Hotel Fort Shelby ..... *
Hotel New Bismark 124
Hotel Shelton 12
Houghton & Co., E. F. 127
Howard Bros. Mfg. Co. 8
Hygrolit, Inc. 77

I

Industrial Rayon Corp. 28
International Nickel Co. 19

J

Jenkins Bros. 26

K

Kali Mfg. Co. 125
Kaumagraph Co. ....Inside Front Cover
Keever Starch Corp. 128
Kenyon & Son, Ltd., James.. 130
Knitting Arts Exhibition.... 118

L

Laurel Soap Mfg. Co. 125
Lawrence Leather Co., A. C.. 85
Lockwood Greene Engineers, Inc. 133
Logemann Bros. Co. 134
Lombard Fdry. & Machine Works 137
Loper & Co., Ralph E. 134

M

Manhattan Rubber Mfg. Co. Division 80
Marston Co., John P. 124
McCord, H. M. 137
Miller-Bryant-Pierce Co. 134
Morehead Mfg. Co. 137
Mundet Cork Corp. 135

N

National Aniline & Chemical Co. 21
National Lamp Works ..... *
National Oil Products Co. .. 68
Neumann & Co., R. 130
New York & New Jersey Lubricant Co. 87

O

Oakite Products Inc. ..... *
Ohio Valley Pulley Works... .....Inside Back Cover
Old Dominion Box Co. 121

P

Page-Madden Co., Inc. 132
Parks Co., M. H. 130
Parks-Cramer Co. 6
Pearson & Son Co., Jos. T... 121
Permutit Co. 18
Phila. Drying Machinery Co.. 89
Phila. Felt Co. 90
Platts Metallic Card Clothing Co. 89
Powers Regulator Co. 124

Q

Quaker City Chemical Co. ... 120
Quissett Mills 119

R

Reeves Pulley Co.,....Back Cover
Reiner & Co., Robert ..... *
Reliance Electric & Eng'g. Co. ..... *
Rockweave Mills 91
Rockwood Mfg. Co..... .....Inside Back Cover
Rohm & Haas, Inc. ..... *
Roy & Sons Co., B. S..... 131
Royce Chemical Co. 81
Royersford Needle Works, Inc. 113
Rundle-Spence Mfg. Co. .... *

S

Saco-Lowell Shops 59
Sargents Sons Corp., C. G. .. 129
Schieren Co., Chas. A. 132
Scholler Bros., Inc. 120
Scott & Williams, Inc. 93
Seydel Wooley Co. 124
Shambow Shuttle Co. ..... *
Sherwin-Williams Co. 84
Showalter Printing Co., A. J. 134
Sirrine & Co., J. E. 13
S. K. F. Industries, Inc. 17
Solvay Sales Corp. 125
Sonoco Products Co. 129
Southern Shippers Supply Co. 135
Standard-Coosa-Thatcher Co.. 116
Standard Brands, Inc. 24
Standard Trump Bros. Machine Co. 94
Steel Heddle Mfg. Co. 65
Stein, Hall & Co., Inc. ..... *

T

Terrell Machine Co. 83
Textile Development Co. 134
Textile Finishing Machinery Co. 138
Textile Machine Works 106
Torrington Co. ....103 and 104
Tubize-Chatillon Corp. 11

U

Union Special Machine Co. .. 120
Universal Winding Co. 114

V

Veeder-Root, Inc. 88
Viscose Co. 15

W

Want Ads 134
Waterman, Currier & Co. ... 120
Weimar Bros. 124
Whitin Machine Works 5
Whitinsville Spinning Ring Co. 131
Wildman Mfg. Co. 96
Willcox & Gibbs Sewing Machine Co. 108
Williams & Sons, I. B. 14
Wolf & Co., Jacques 23
Woodward, Baldwin & Co. .. 124

Arguto NON-METALLIC

20 years without a drink—

"Smoother than Grease"

"Arguto Bushings have outlasted 7 Bronze Bushings in the same place. Very severe service."

—unsolicited testimonial

ARGUTO OILLESS BEARING CO.

WAYNE JUNCTION PHILADELPHIA

WE have been appointed liquidating agents for the Savona Mfg. Co., Charlotte, N. C. This mill has some very desirable machinery for replacement or addition. There are a large number of Wide Looms, Jacquards, Finishing Machinery and the like. Please write either to our Greenville office or to our New York office, asking for catalog, stating the particular type of machinery you might be interested in.

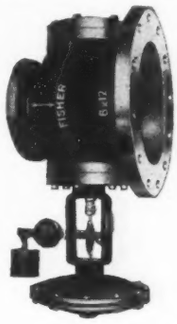
H. M. McCORD

1400 Woodside Bldg., Greenville, S. C.

New York City 100 E. 42nd St. Ashland 4-0345

Phone 505

Boston, Mass. 161 Devonshire St. Liberty 5948



Accurate Pressure Control

The Fisher Type 11A Reducing Valve or Pressure Regulator has an increased outlet which permits economical sizing of the piping. It is widely used for saturated or superheated steam, water, oil and other fluids. It is simple in design and dependable in operation. Write for a copy or Bulletin No. 5 which also describes other types of reducing valves and pressure regulating devices.

FISHER GOVERNOR COMPANY

500 Fisher Building, Marshalltown, Iowa

FISHER

THE MARK OF SCIENTIFIC FLUID CONTROL

Gears
Grate Bars
Pulleys
Castings
Hangers
Shafting
Pipe
Belting
Hose
Steel Beams
Steel Angles
Boilers

FOUNDRY MACHINE SHOP

LOMBARD IRON WORKS & SUPPLY CO.

AUGUSTA, GA.

All Kinds Machinery Repaired.

BOILER WORKS MILL SUPPLIES

Morehead Back to Boiler SYSTEM

Furnishes *hot* boiler feed water by recovering *all* condensation at original temperatures.

MOREHEAD MANUFACTURING CO.

Dept. C DETROIT, MICH.

(426)

SANFORIZING and TEXTILE

Facts of interest to the trade

THE TEXTILE-FINISHING MACHINERY COMPANY
built a large part of the first experimental machines installed by

Cluett Peabody & Co.

and has had a very important part in the development of:

SANFORIZERS

or

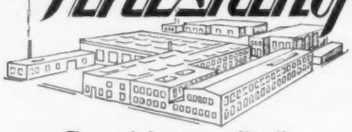
SANFORIZING EQUIPMENT

TEXTILE has recently designed and is now building the most complete and up-to-date SANFORIZER, with many new features such as selective gear shift drives self-contained, to allow for the percentage of shrink required for the particular goods to be run.

These SANFORIZERS are complete with the Palmer or blanket refinishing machine.

Write for complete specifications and full information.

The Textile-Finishing Machinery Co.



New York Office
50 Church St

Providence, R. I.

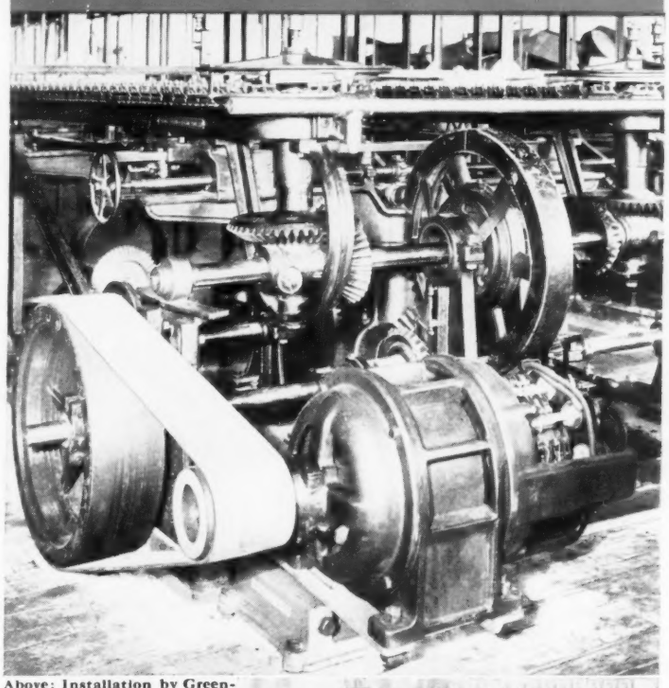
Southern Agent
H. G. Mayer, Charlotte, N. C.

Manufacturers of Machinery for

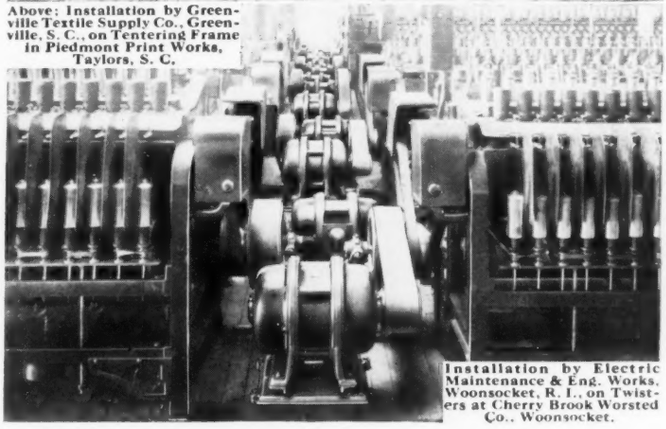
Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Textile Fabrics and Warp Yarns

ROCKWOOD DRIVE

SHORT-CENTER FLAT BELT



Above: Installation by Greenville Textile Supply Co., Greenville, S. C., on Tentering Frame in Piedmont Print Works, Taylors, S. C.



Installation by Electric Maintenance & Eng. Works, Woonsocket, R. I., on Twisters at Cherry Brook Worsted Co., Woonsocket.

QUIET...CLEAN...EFFICIENT

plus the added advantages of simplicity, economy and enduring dependability! The ROCKWOOD Short-Center Drive, offering *all* these important advantages, has established *higher* standards of power-transmission performance in the textile industry!

Impressed by the superior performance of the ROCKWOOD Short-Center Drive, aggressive textile engineers are giving greater attention to practical power-transmission equipment for *all* machines, whether driven individually or from lineshafts.

In every case, the use of ROCKWOOD PULLEYS THAT PULL is the best way to secure steady, dependable power-transmission. These practical pulleys make machines do *more* and *better* work. They GRIP and PULL the belt steadily, delivering full power at *constant* speeds. They are perfectly balanced and true-running. They prolong the life of belt and bearings, because they PULL with minimum tension.

Wherever you have s-l-i-p-p-i-n-g, power-wasting metal pulleys that fail to maintain steady speeds, replace *completely* with ROCKWOOD PULLEYS and *save money!* Remember that one ROCKWOOD PULLEY in a drive is only *half* enough! Use two for full efficiency!

ROCKWOOD PULLEYS THAT PULL, of suitable types for motors, lineshafts and driven machines, are available in a wide range of stock sizes. Complete service stocks in all principal cities. Immediate delivery! Mail coupon below for convenient reference books.

ROCKWOOD

PULLEYS THAT PULL

THE ROCKWOOD MANUFACTURING CO., INDIANAPOLIS, INDIANA—THE OHIO VALLEY PULLEY WORKS, MAYSVILLE, KENTUCKY

1-32

Please send books checked.

☐ Specifications of 2,540 stock sizes, ROCKWOOD PULLEYS THAT PULL.

☐ Specifications of stock ROCKWOOD Short-Center Drives from 1 to 100 h.p.

NAME.....

COMPANY.....

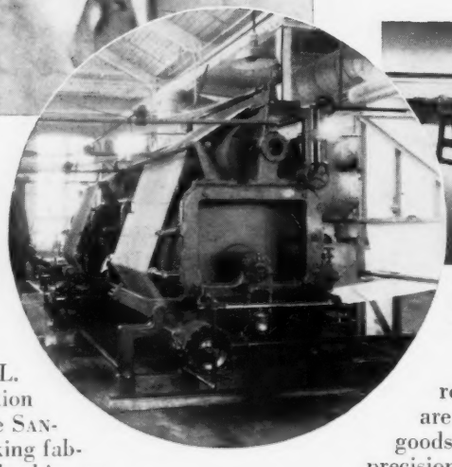
ADDRESS.....

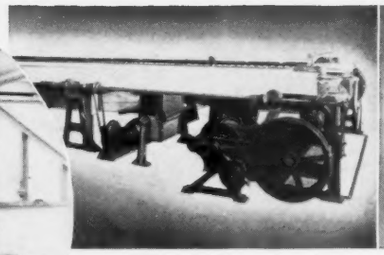
• *The* INVENTOR *of the* SANFORIZING PROCESS *uses* REEVES TRANSMISSIONS *exclusively*

•

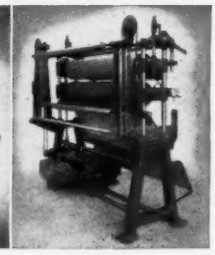
ABOVE: SANFORD L. CLUETT, inventor of SANFORIZING PROCESS (*Vice-President, Cluett, Peabody & Co., Inc., Troy, N. Y.*)

AT RIGHT: Delivery end of one of the completely REEVES-equipped Morrison Sanforizers at *Cluett, Peabody & Co.* plant.





Tenter unit of Sanforizing machine, manufactured by *Textile Finishing Machinery Co., Providence, R. I.* Standardly REEVES-equipped



Intermediate feeding rolls of Morrison Sanforizer, manufactured by *Morrison Machine Co., Paterson, N. J.* Standardly REEVES-equipped

● THE development and perfection of Mr. Sanford L. Cluett's important contribution to the textile industry—the SANFORIZING process for shrinking fabrics—has been conducted by him on machines equipped with REEVES Variable Speed Transmissions.

Here, as in innumerable other industrial processes where hair-line accuracy in flexible speed control is a basic requisite, the REEVES Transmission has been the logical selection, because of its extreme precision and unfailing dependability in service.

Until Mr. Sanford L. Cluett conceived and developed the SANFORIZING process, the shrinking of fabrics was largely a matter of guess work and uncertainty. Today, with this highly perfected process, using very accurately regulated mechanical equipment, the shrinkage is so definitely accomplished and so positively controlled that shirts and other apparel made from SANFORIZED fabrics are guaranteed for permanent fit.

At the Cluett, Peabody & Co. plant, where many millions of yards of fabric have been scientifically shrunk by this modern process, each SANFORIZING unit is equipped with two REEVES Transmissions—one driving the tenter frame and the other driving the feed rolls controlling the flow of goods to the palmer. Variations in speed of the tenter are required for various weights of fabric, and the specific degree of shrinkage desired. Variations in speed at the feed rolls, automatically actuated by a "dancer roll," are necessary to maintain a properly timed flow of goods to the palmer blanket. In each instance, extreme precision in speed regulation is vitally important.

Mr. Cluett's unqualified endorsement of the REEVES Transmission for this exacting service is exemplary of the high regard in which the REEVES Transmission is held by the most prominent and successful textile manufacturers and machinery builders. REEVES leadership in the field, and the many superior advantages built into REEVES Transmissions, are a result of years of specialized experience in correct speed-control engineering, applied to many thousands of industrial machines.

The new REEVES catalog T-32—a complete treatise on efficient speed control—embodies valuable information of special importance to textile engineers and production executives. It offers definite aid in saving production dollars by the most advanced methods of speed regulation. Write for your copy today.

REEVES PULLEY CO., COLUMBUS, INDIANA

REEVES

Variable Speed Transmission